

Fig. 1

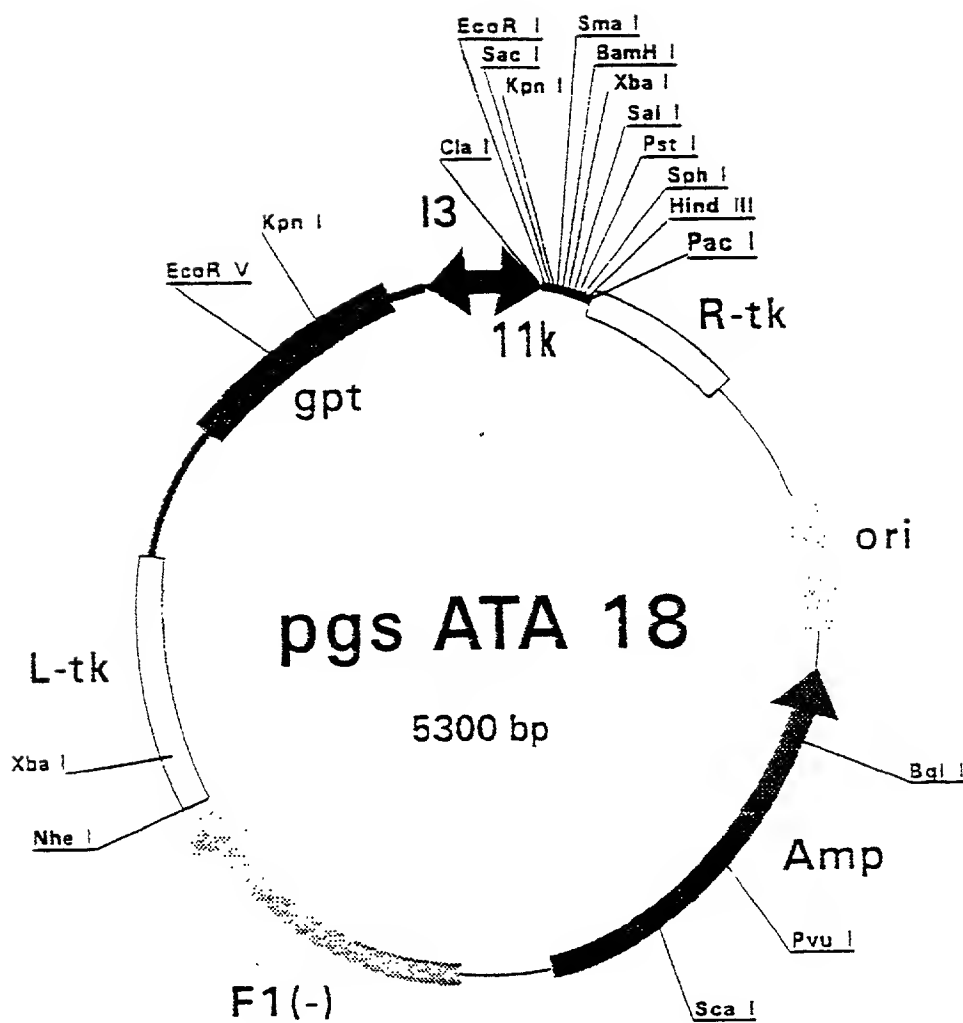


Fig. 2

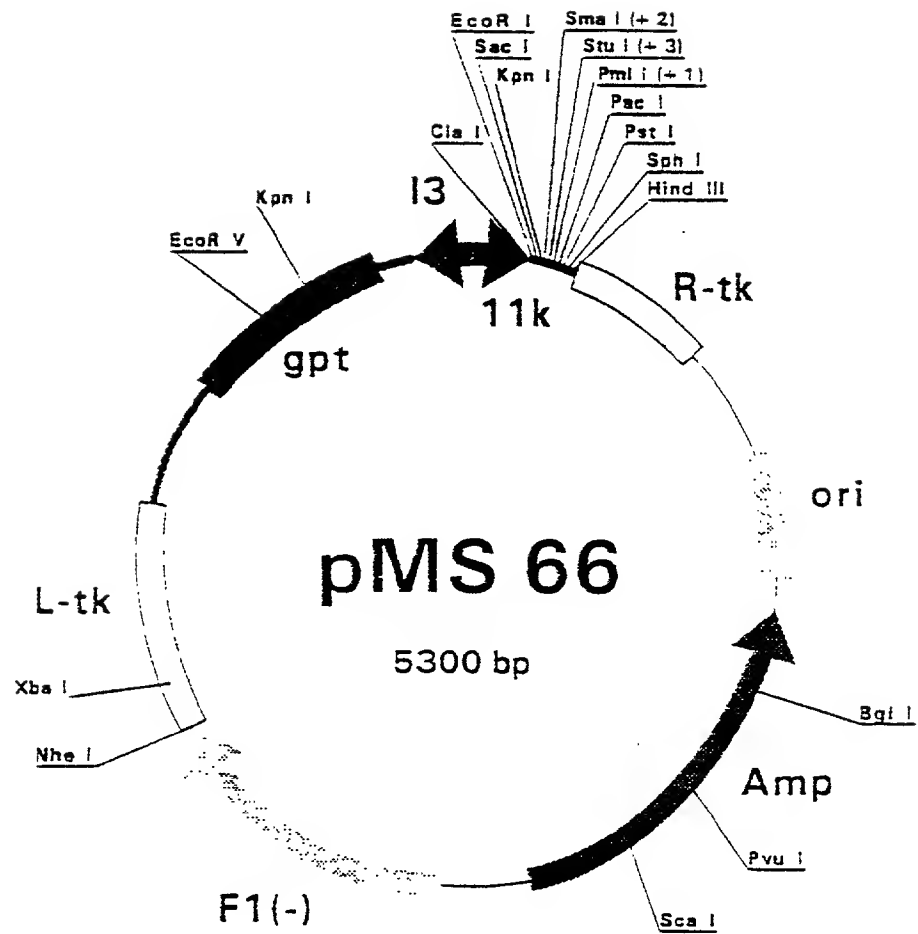


Fig. 3

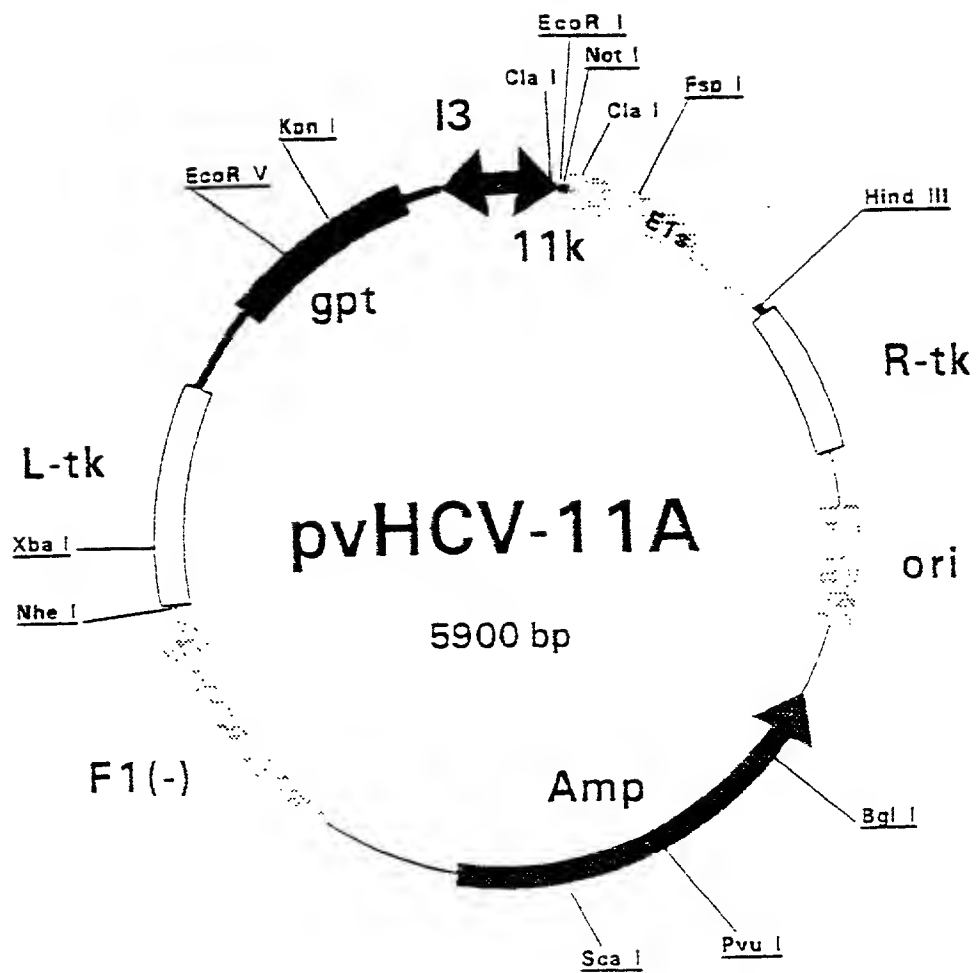
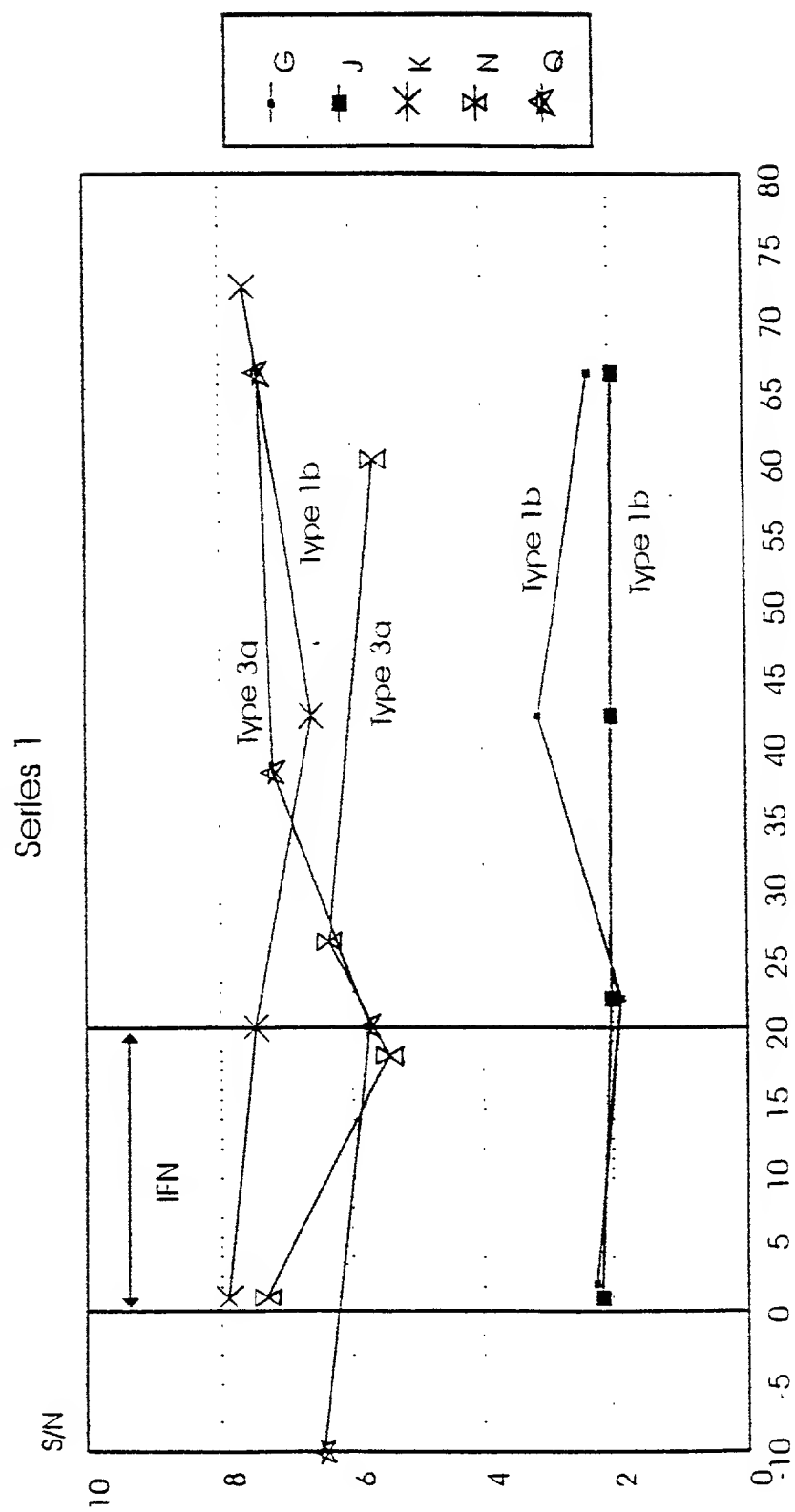


Fig. 4

# Anti-E1 levels in NON-responders to IFN treatment

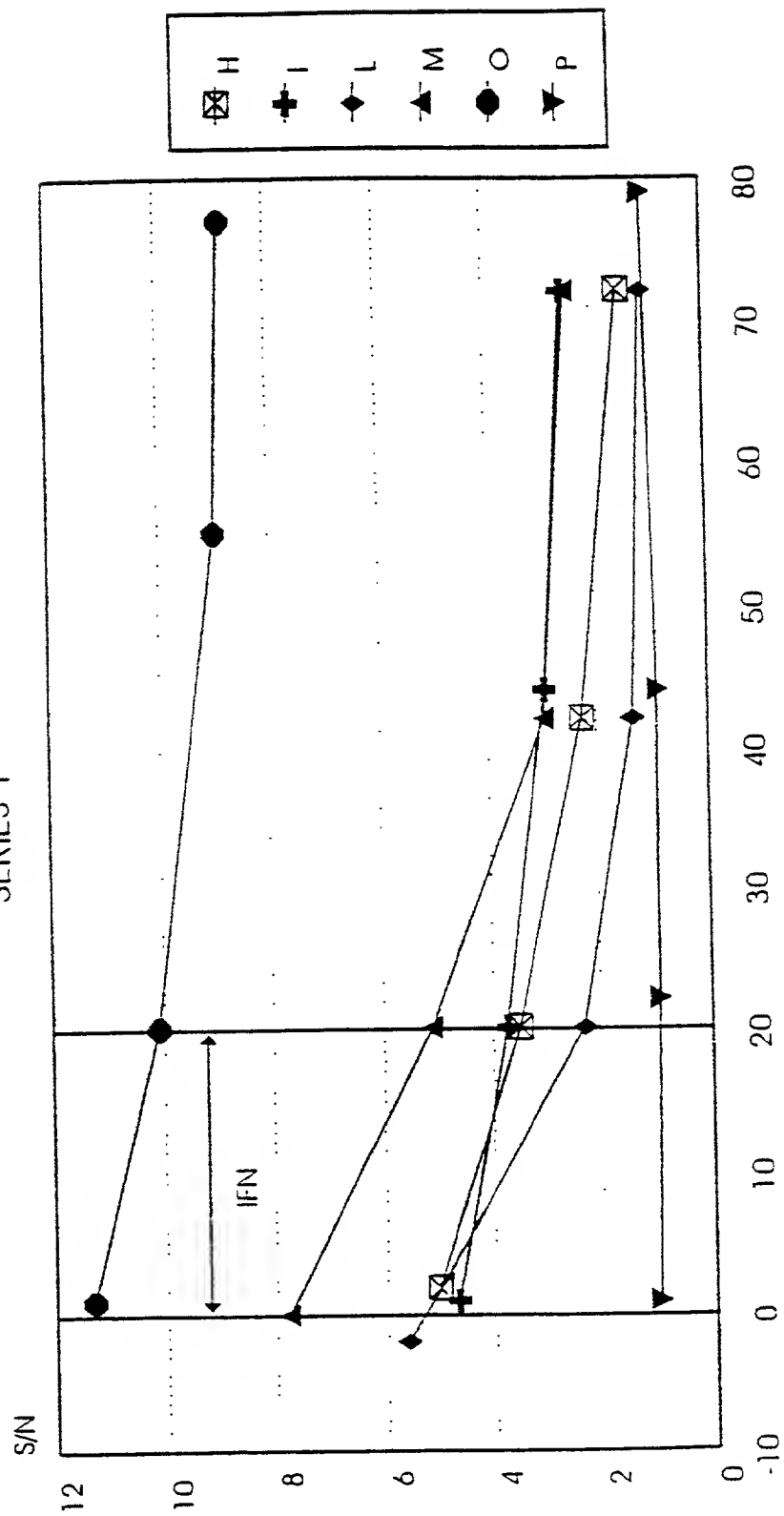


weeks after start of treatment

Fig. 5

# Anti-E1 levels in RESPONDERS to IFN treatment

SERIES 1

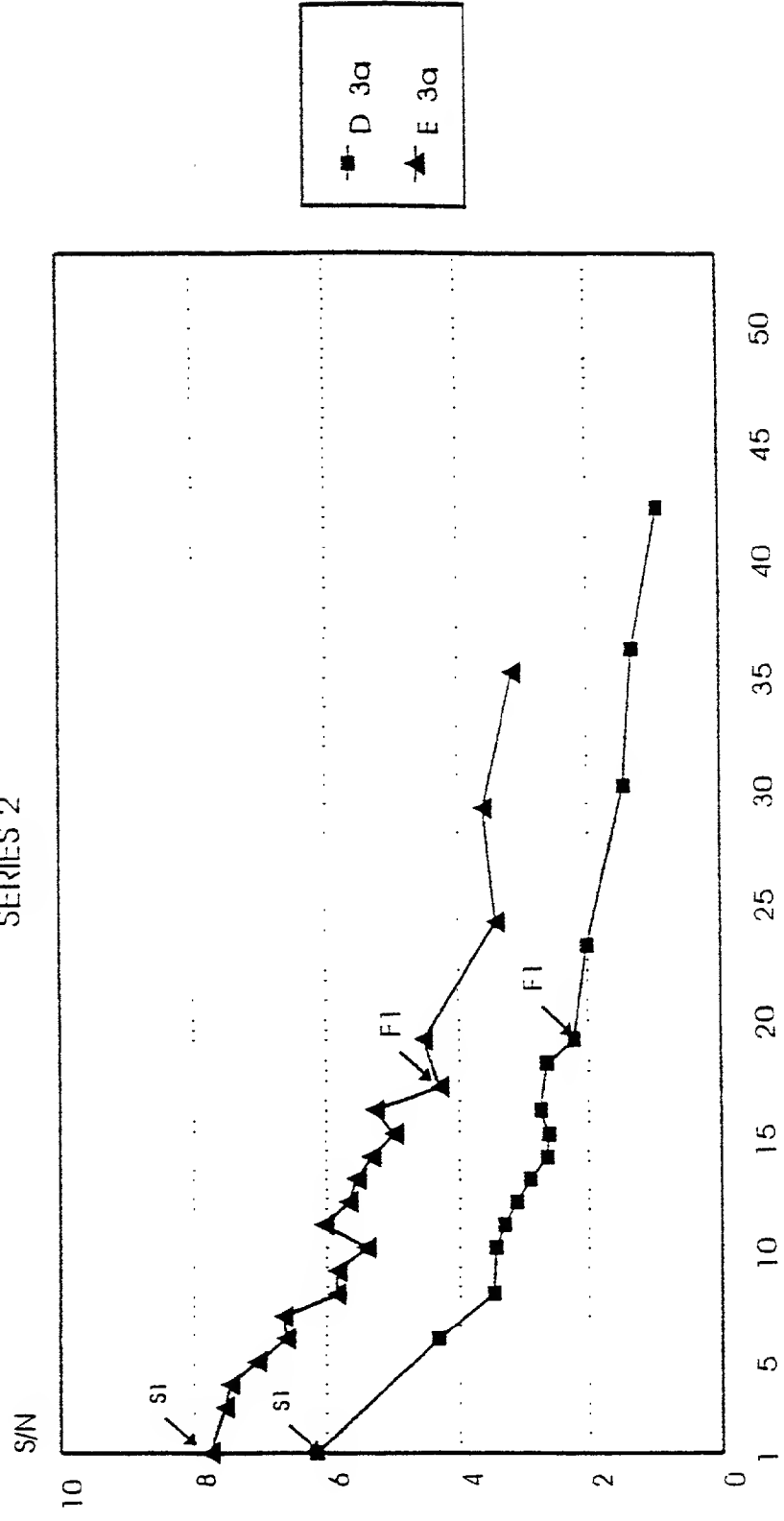


weeks after start of treatment

Fig. 6

Anti-E1 levels in patients with COMPLETE response to IFN

SERIES 2

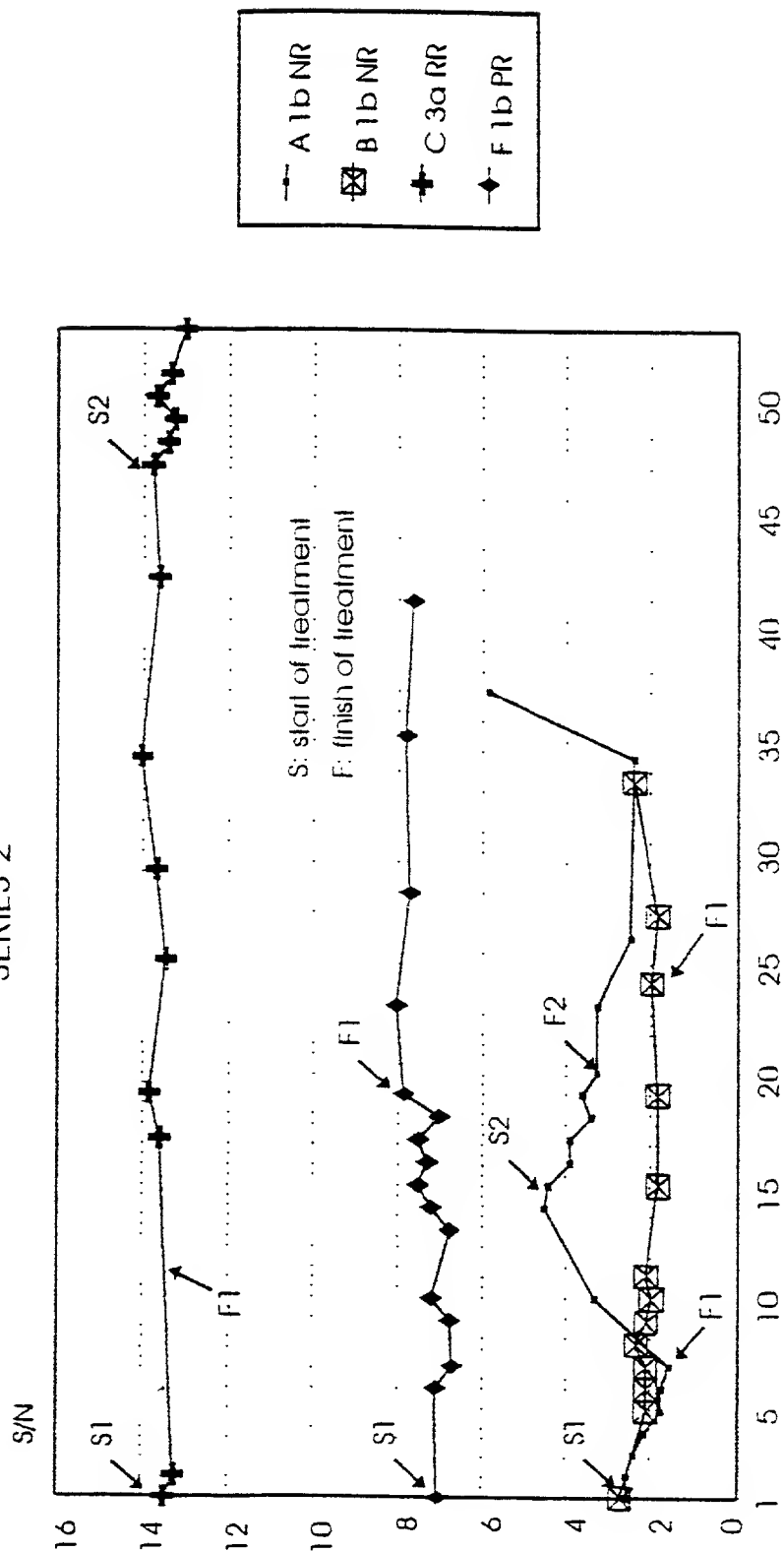


months after start of treatment

Fig. 7

# SERIES 2

Anti-E1 levels in INCOMPLETE responders to IFN treatment



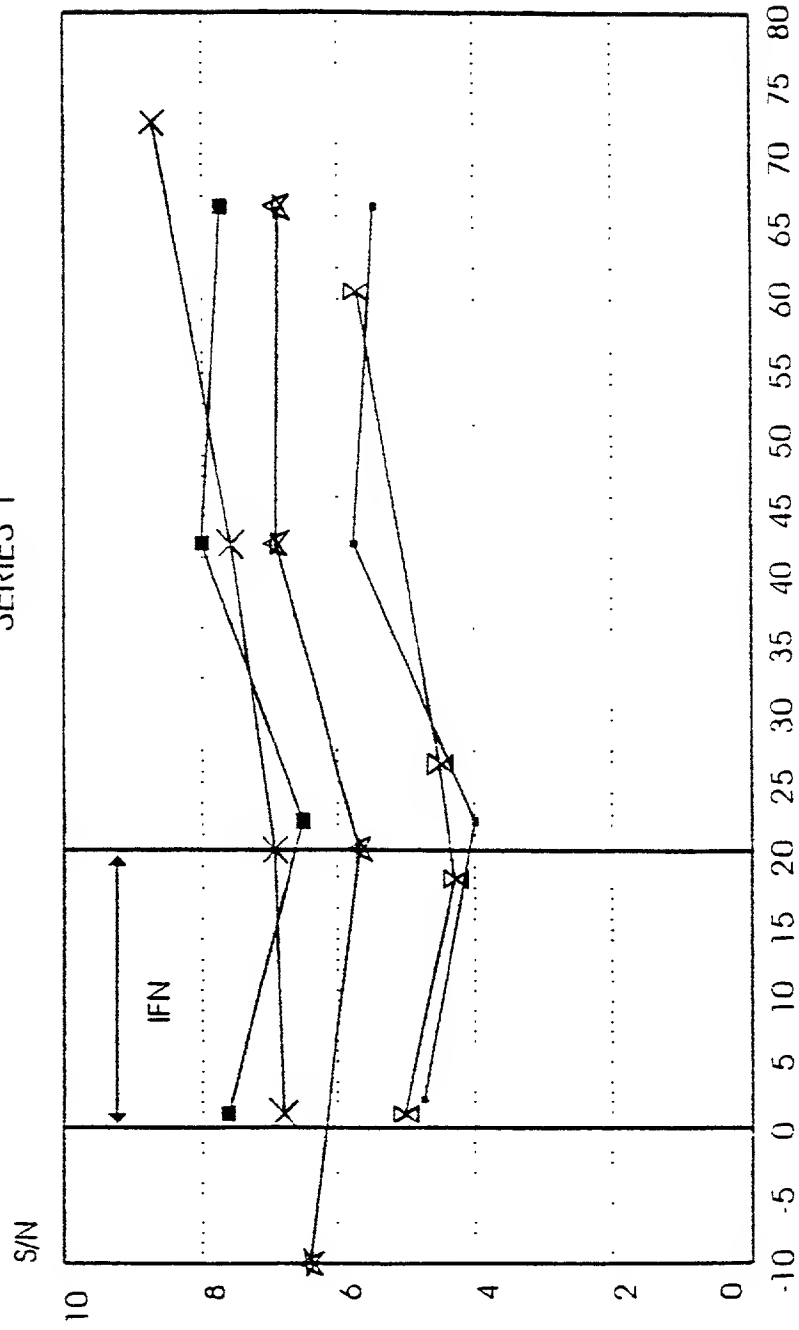
months after start of treatment

Fig. 8



# Anti-E2 levels in NON-RESPONDERS to IFN treatment

SERIES 1

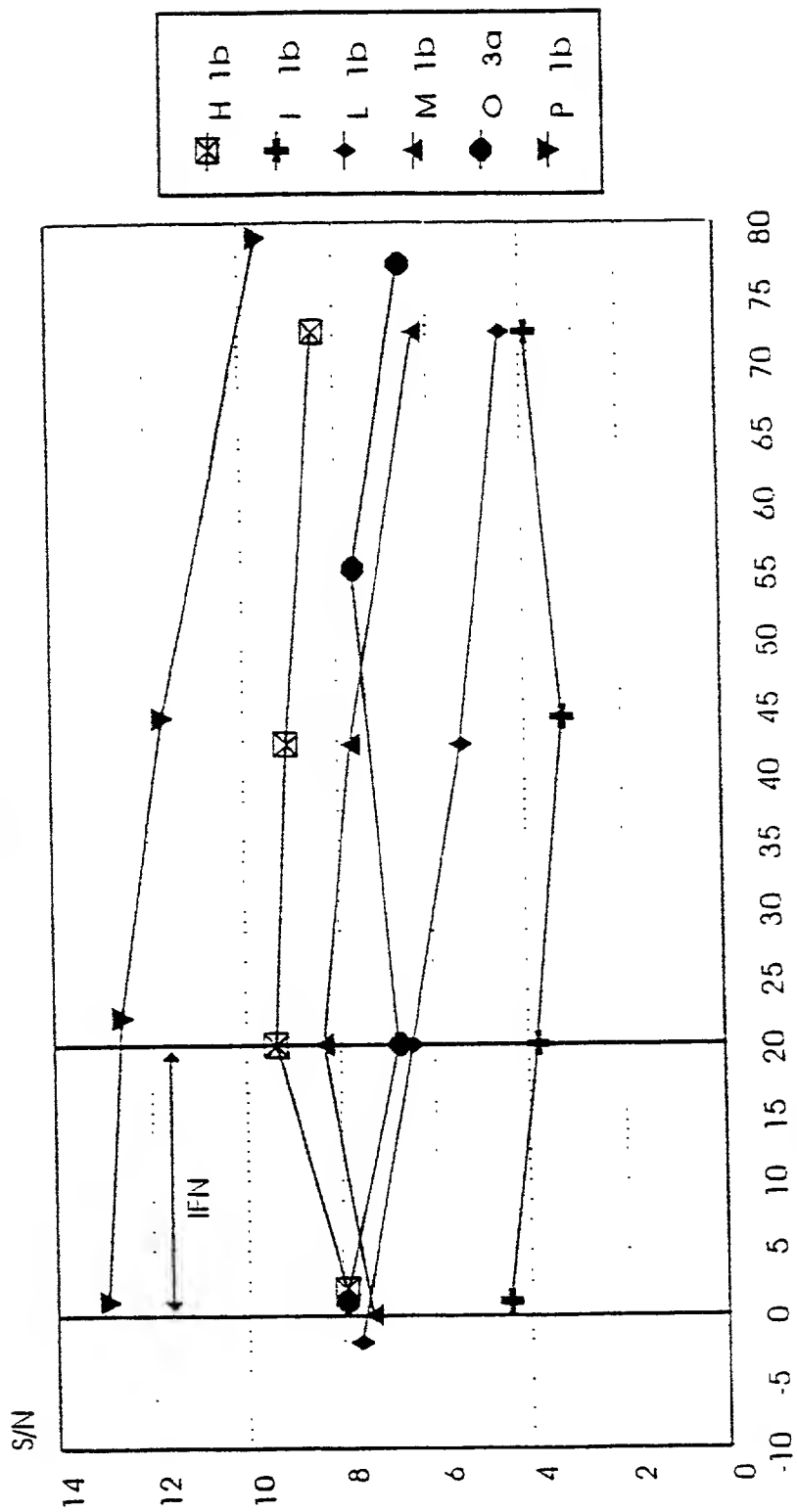


weeks after start of treatment

Fig. 9

# Anti-E2 levels in RESPONDERS to IFN treatment

SERIES 1

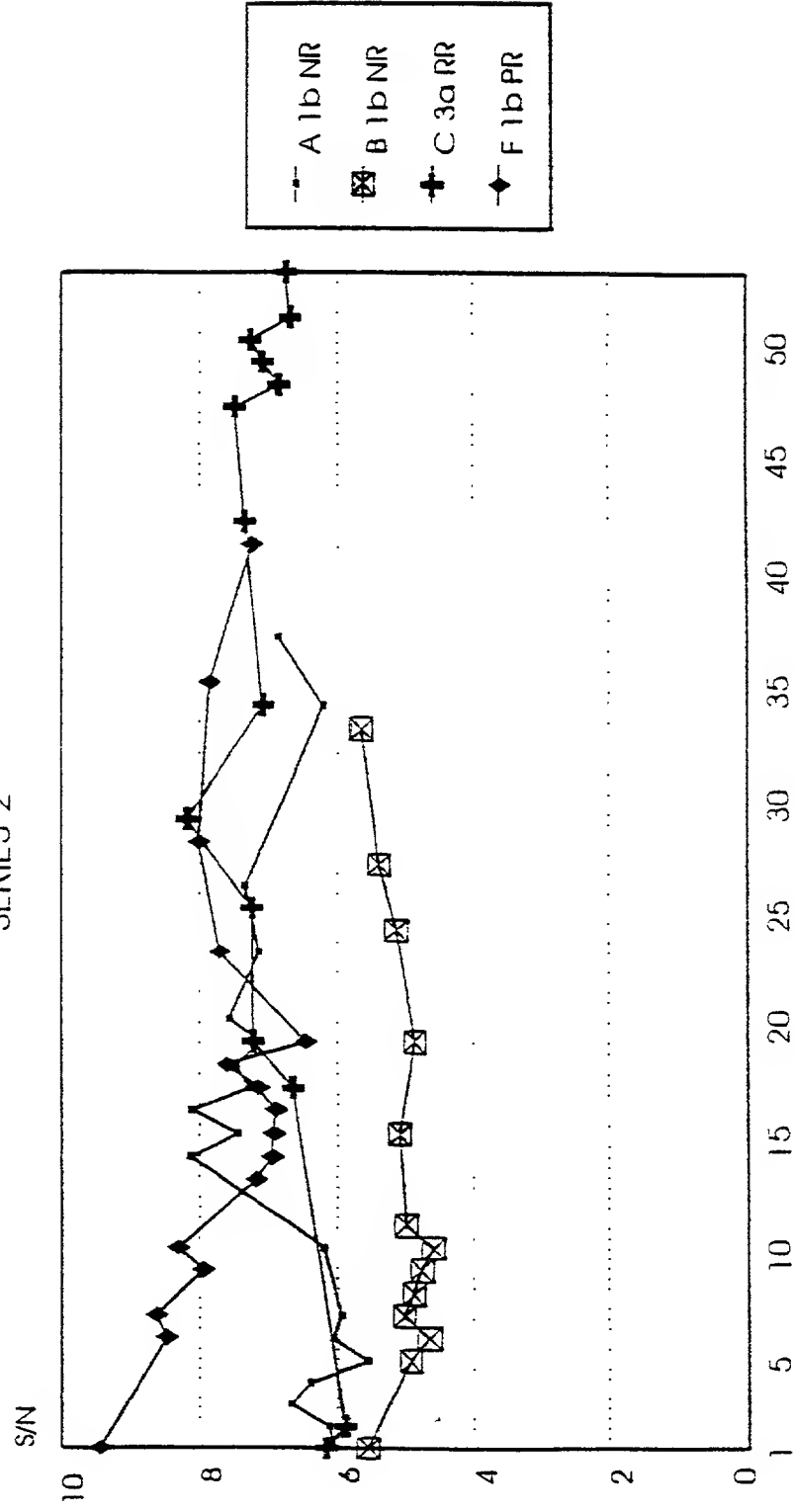


weeks after start of treatment

Fig.10

# Anti-E2 levels in INCOMPLETE responders to IFN treatment

SERIES 2



months after start of treatment

Fig.11

# Anti-E2 levels in COMPLETE responders to IFN treatment

SERIES 2

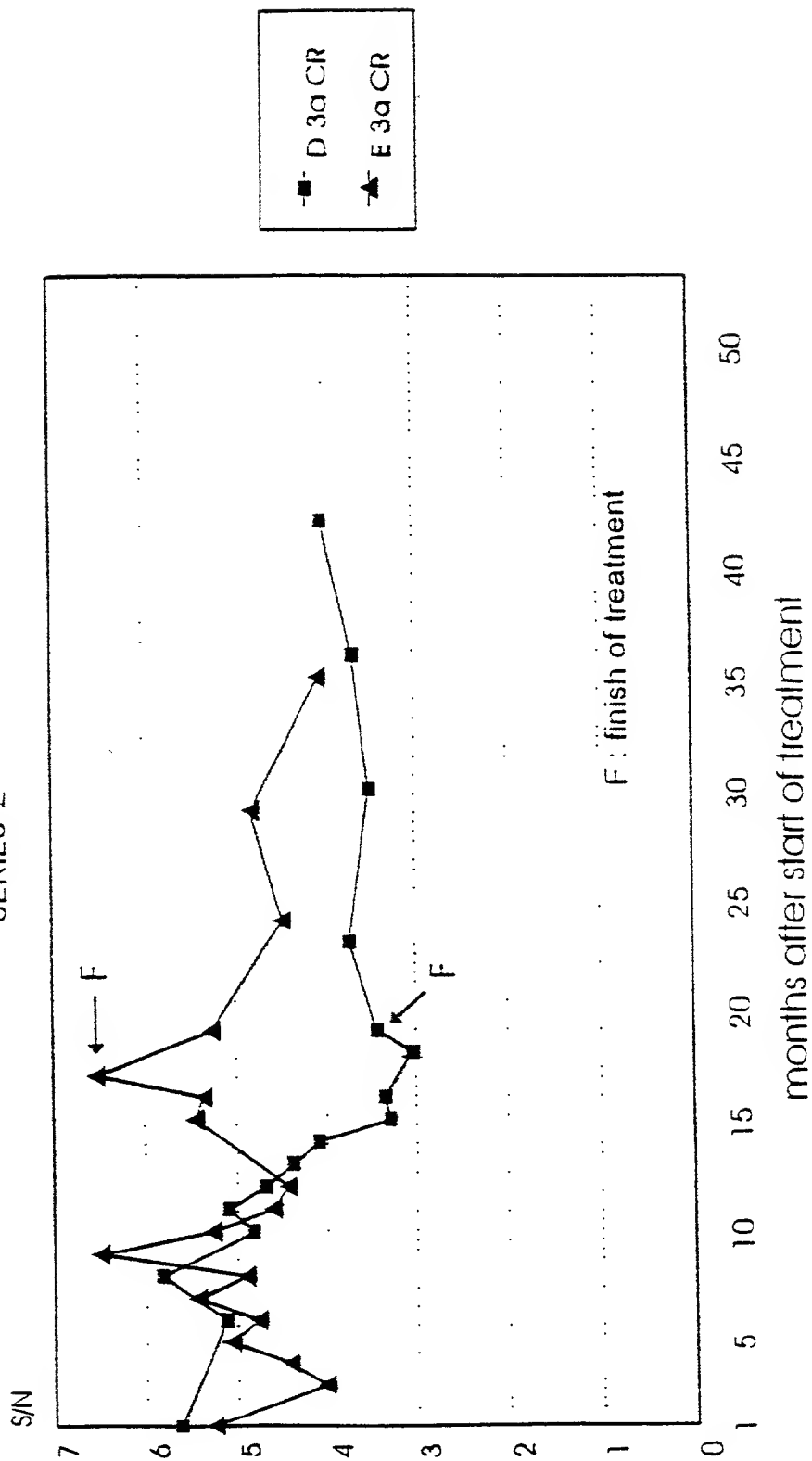


Fig.12

# Human anti-E1 reactivity competed with peptides

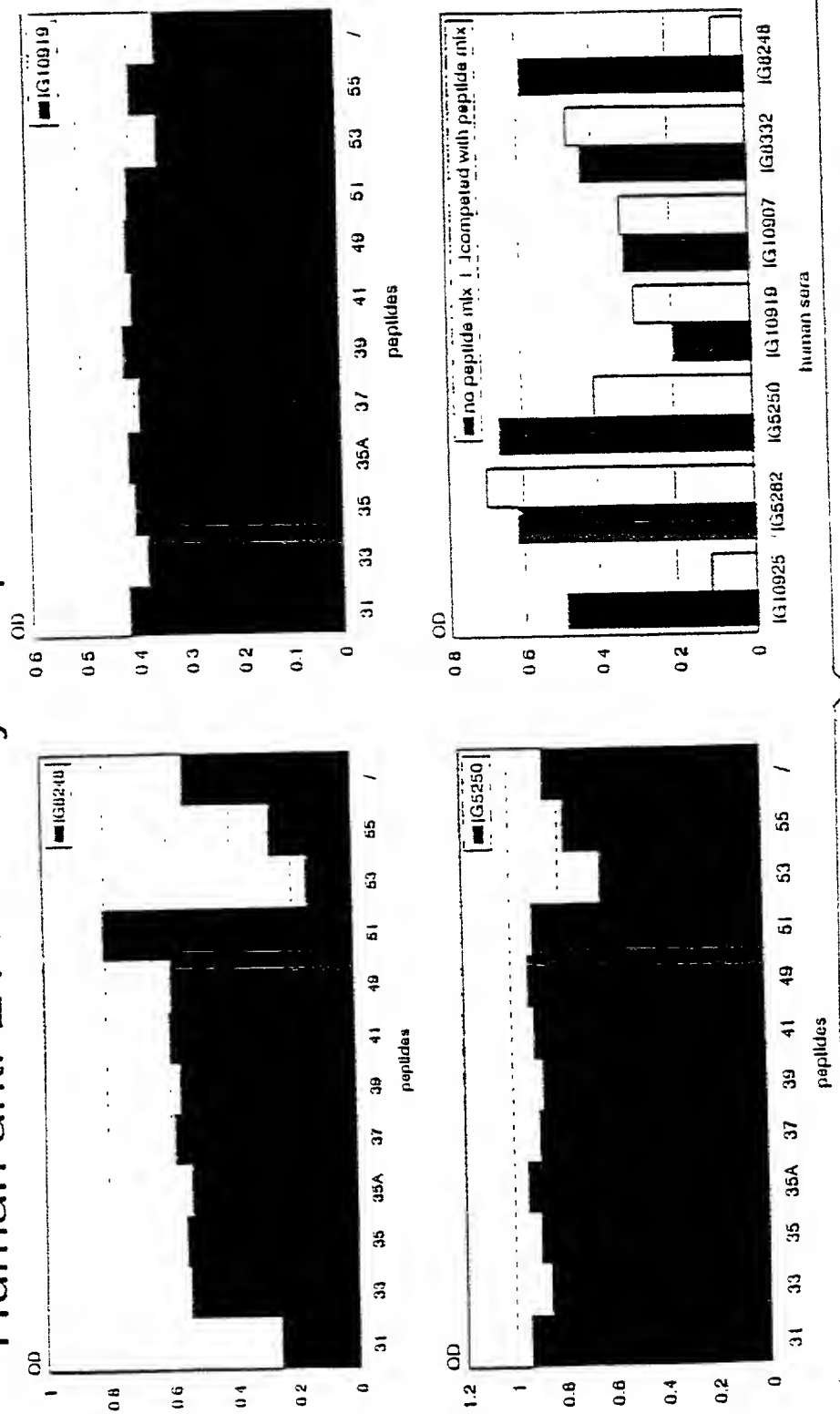


Fig.13

# Competition of reactivity of anti-E1 Mabs with peptides

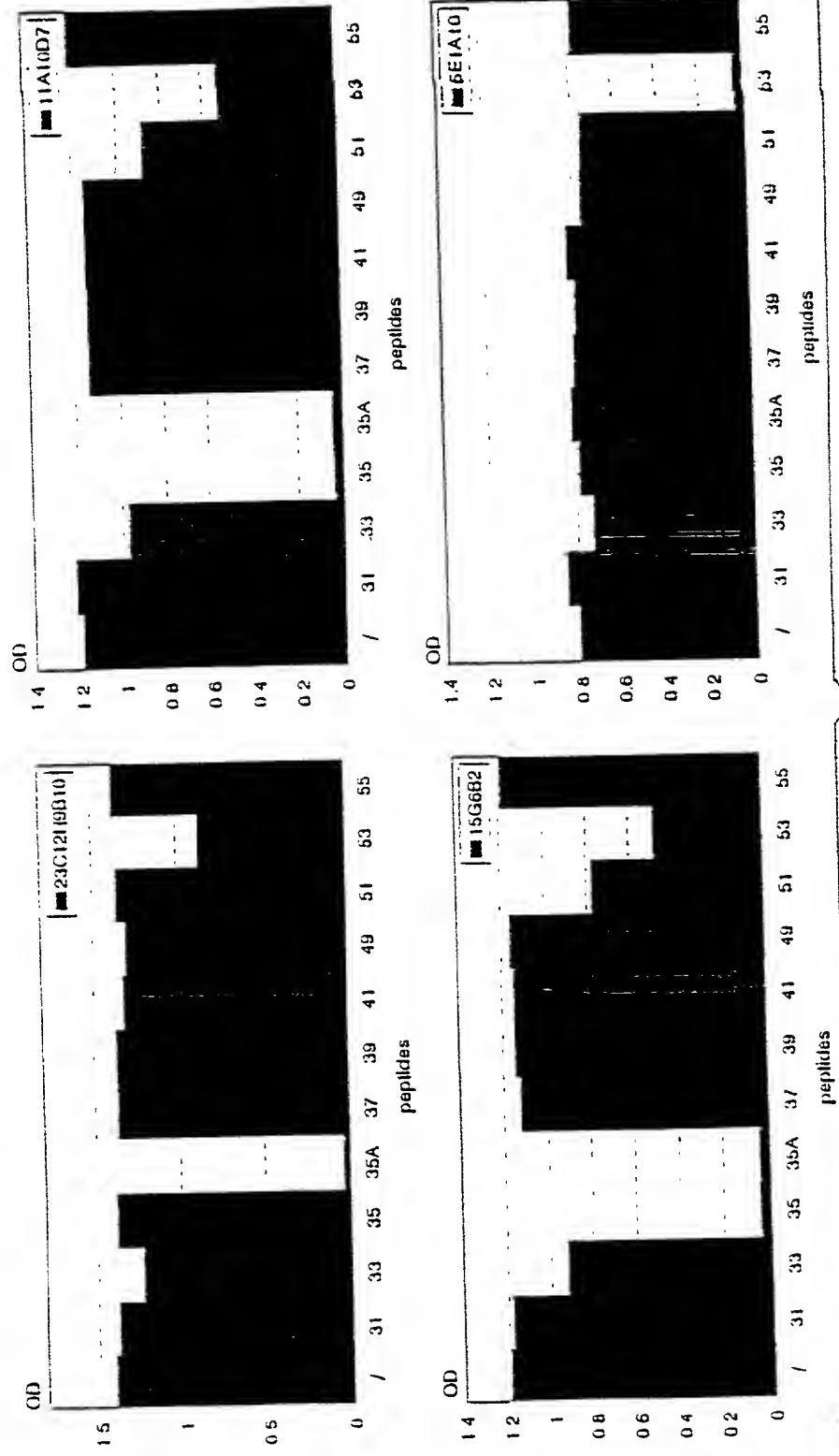


Fig.14

# Anti-E1 (epitope 1) levels in NON-RESPONDERS to IFN treatment

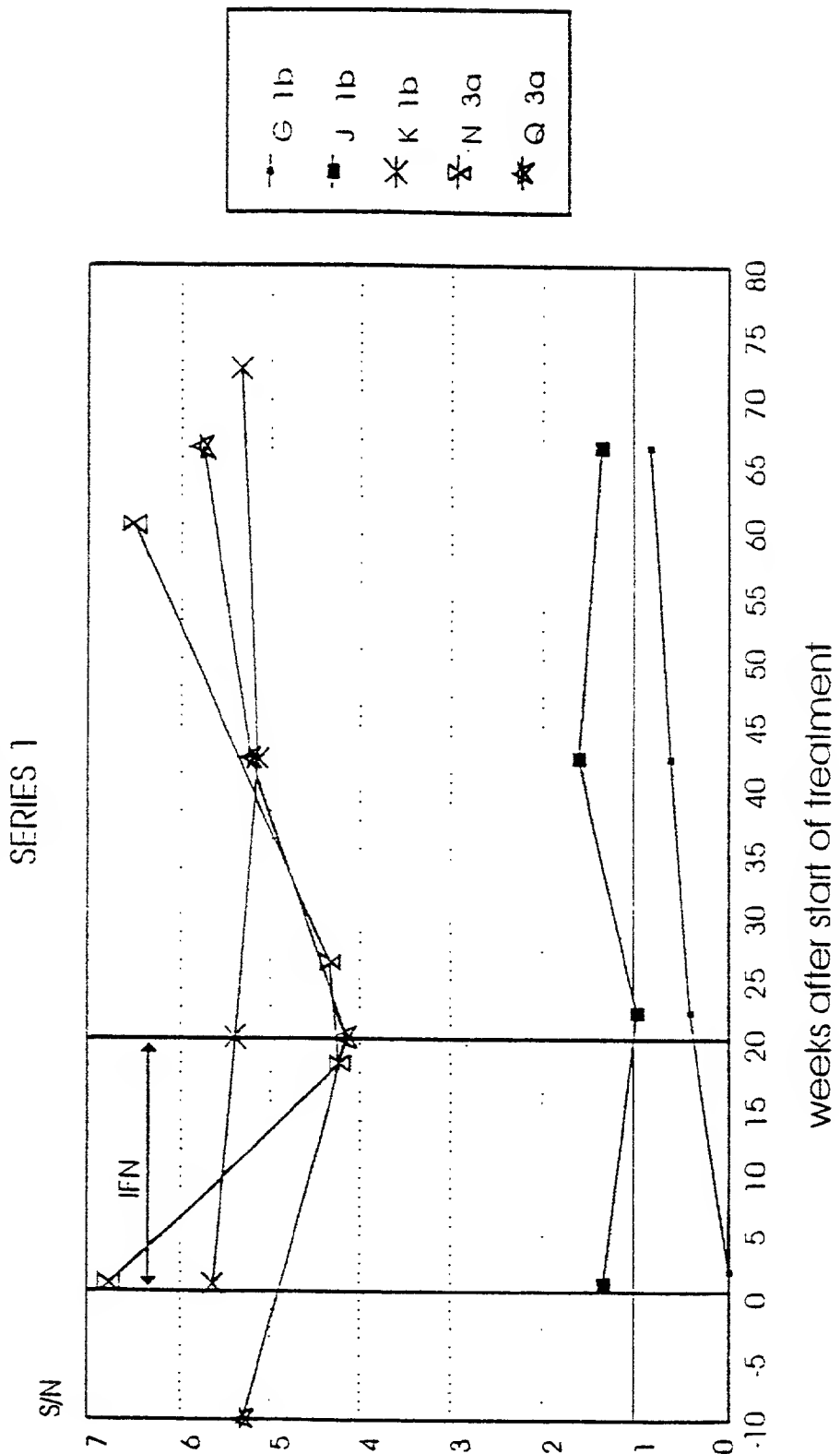


Fig.15

### Anti-E1 (epitope 1) levels in RESPONDERS to IFN treatment

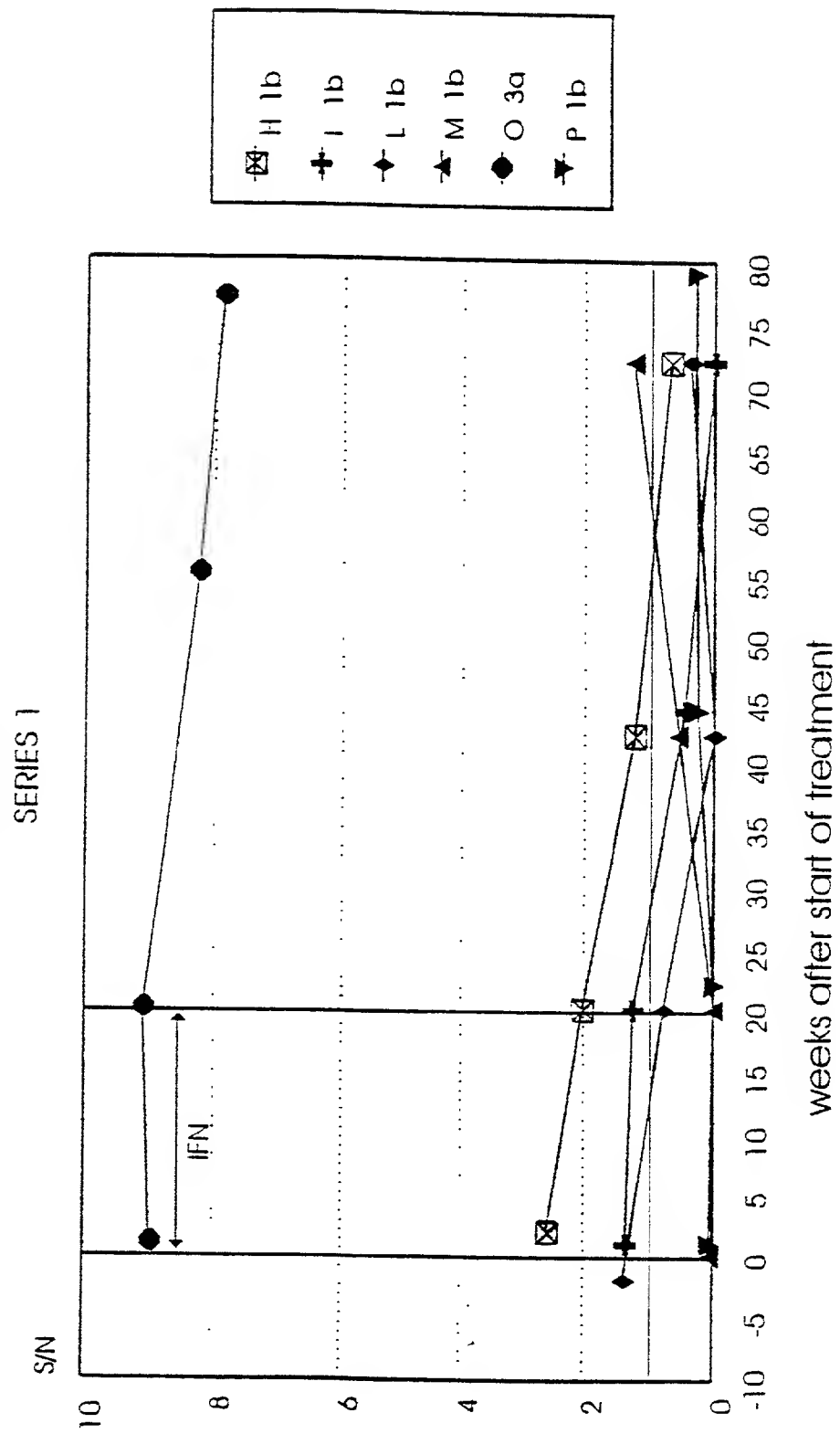
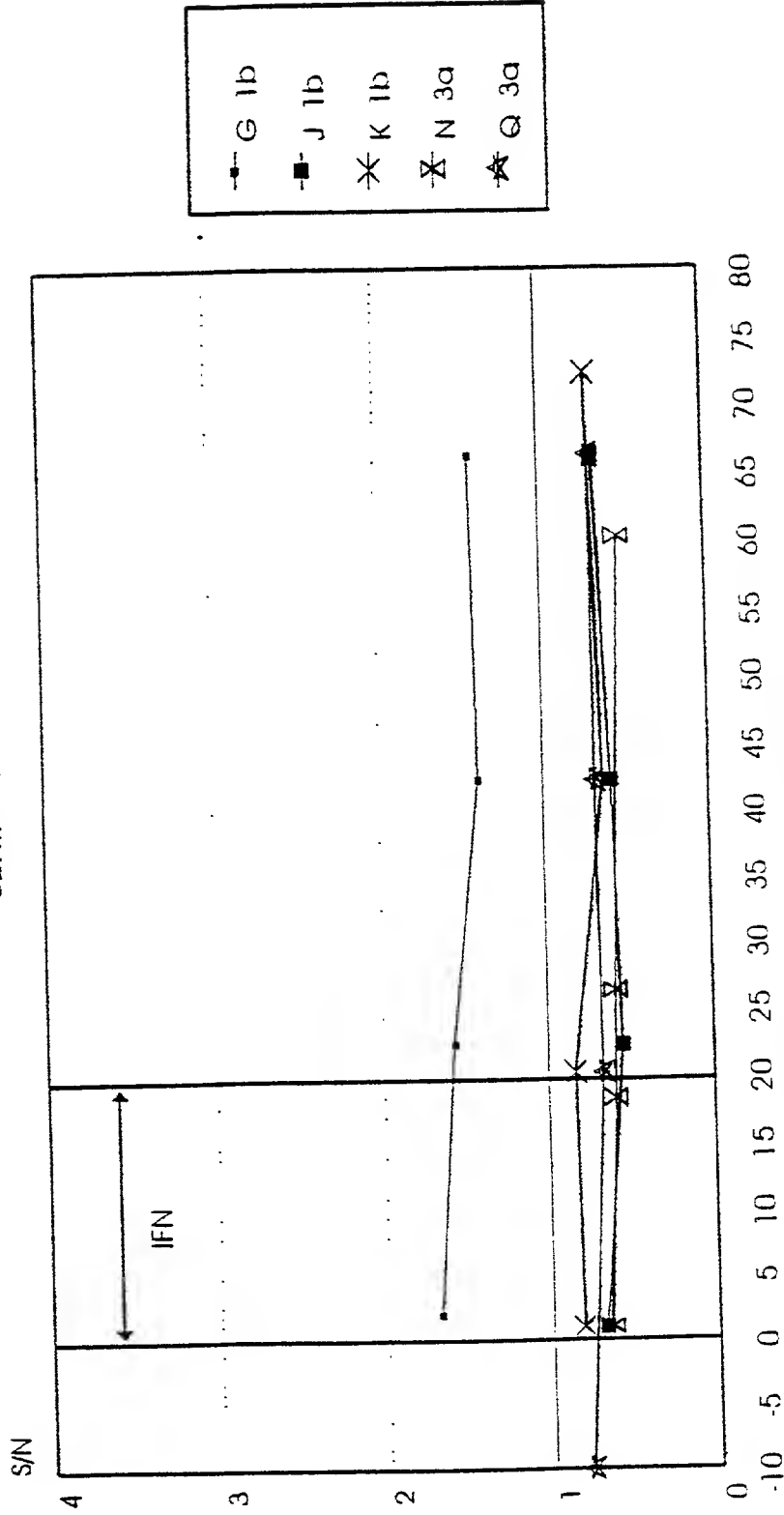


Fig. 16



# Anti-E1 (epitope 2) levels in NON-RESPONDERS to IFN treatment

SERIES 1

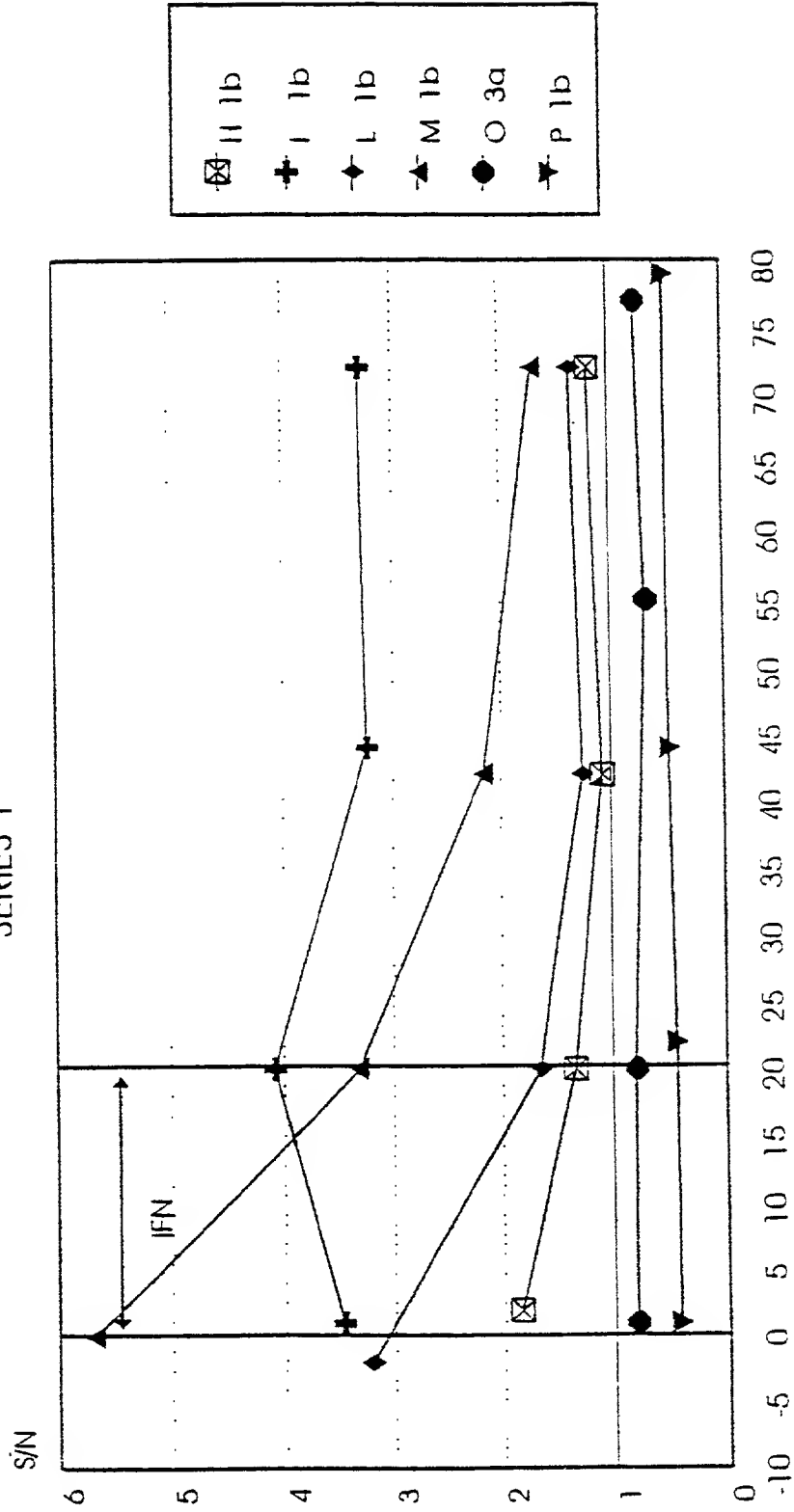


weeks after start of treatment

Fig.17

# Anti-E1 (epitope 2) levels in RESPONDERS to IFN treatment

SERIES 1



weeks after start of treatment

Fig.18

# Competition of reactivity of anti-E2 Mabs with peptides

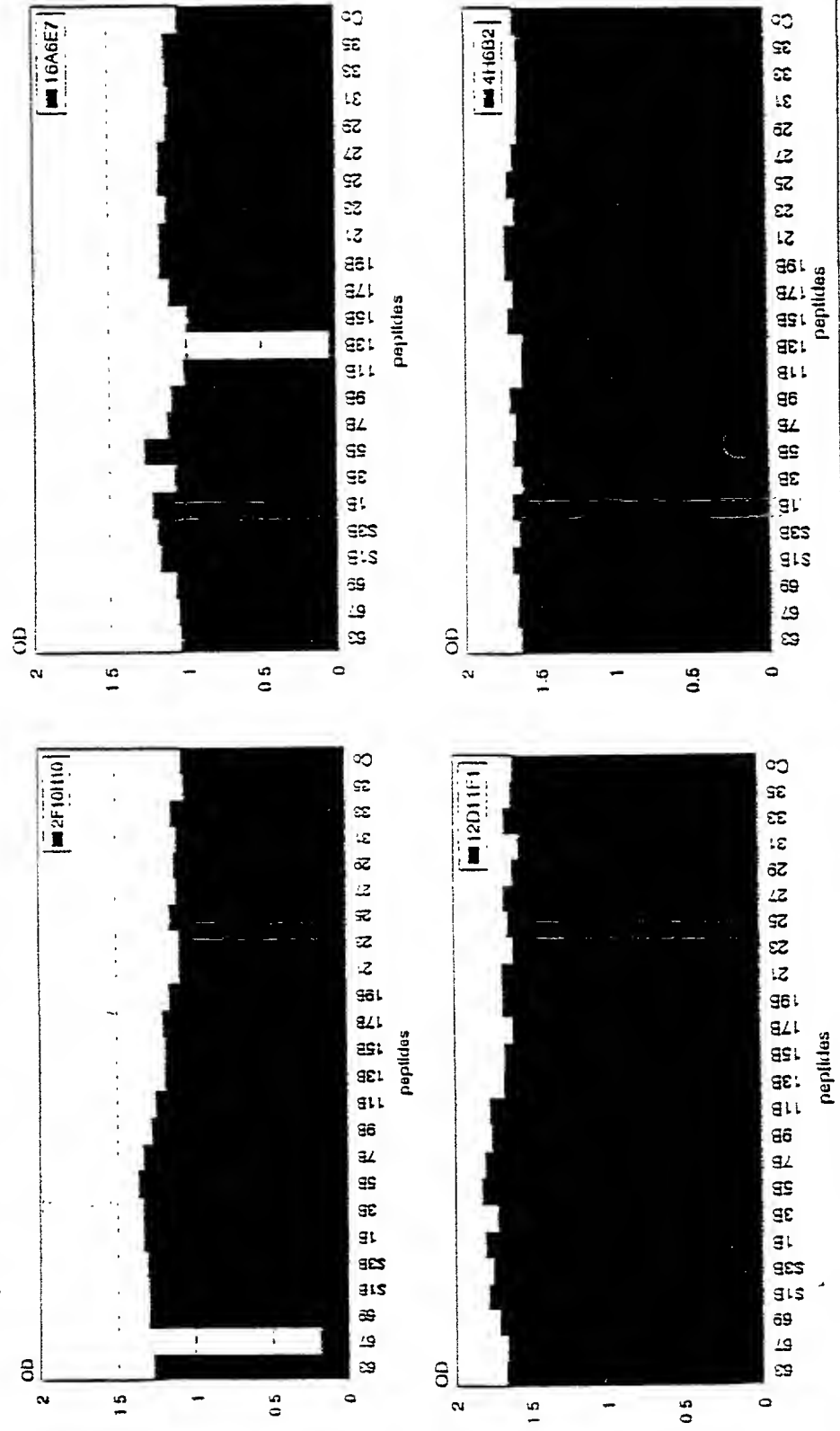


Fig.19

# Human anti-E2 reactivity competed with peptides

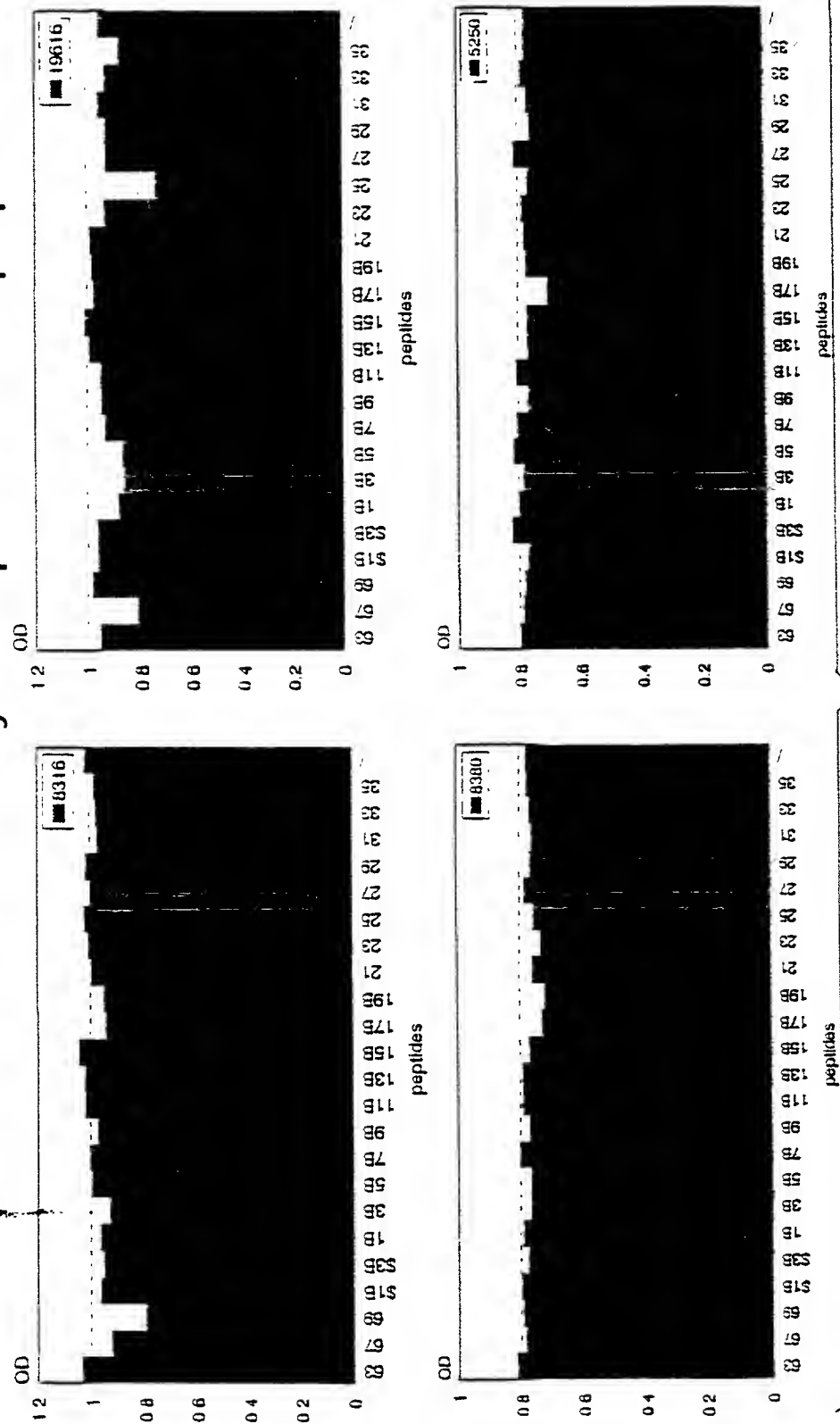


Fig. 20

## Fig. 21A

5' GGCATGCAAGCTTAATTAATT3' (SEQ ID NO 1)

3'ACGTCCGTACGTTTCAATTAATTAATCGA5' (SEQ ID NO 94)

5'CCGGGGAGGCCTGCACGTGATCGAGGGCAGACACCATCACCACCATCACTAATAGT  
TAATTAAGTCA 3' (SEQ ID NO 2)

3'CCTCCGGACGTGCACTAGCTCCCGTCTGTGGTAGTGGTGGTAGTGATTATCAATTAATTG  
5' (SEQ ID NO 95)

SEQ ID NO 3 (HCC19A)

ATGCCCGGTTGCTCTTTCTCTATCTTCCTCTTGGCTTTACTGTCTGTCTGACCATTCCA  
GCTTCCGCTTATGAGGTGCGCAACGTGTCCGGGATGTACCATGTACGAACGACTGCT  
CCAACTCAAGCATTGTGTATGAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGT  
GCCCTGCGTTCGGGAGAACAACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTC  
GCAGCTAGGAACGCCAGCGTCCCCACCACGACAATACGACGCCACGTGCGATTTGCTCG  
TTGGGGCGGGCTGCTCTCTGTTCCGCTATGTACGTGGGGGATCTCTGCGGATCTGTCTTC  
CTCGTCTCCAGCTGTTCCACCATCTCGCCTCGCGGCATGAGACGGTGCAGGACTGCA  
ATTGCTCAATCTATCCCGGCCACATAACAGGTCACCGTATGGCTTGGGATATGATGAT  
GAACTGGTCGCCTACAACGGCCCTGGTGGTATCGCAGCTGCTCCGGATCCCACAAGCT  
GTCGTGGACATGGTGGCGGGGGCCCATTTGGGGAGTCTGGCGGGCCTCGCCTACTATT  
CCATGGTGGGGAAGTGGGCTAAGGTTTTGATTGTGATGCTACTCTTTGCTCTCTAATAG

SEQ ID NO 5 (HCC110A)

ATGTTGGGTAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAAGTATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCT  
ATCTTCCTCTTGGCTTTGCTGTCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAAGTCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCGGGAGAAC  
AACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTGCGATTTGCTCGTTGGGGCGGGCTGCTTTCTG

Fig. 21B

TTCCGCTATGTACGTGGGGGACCTCTGCGGATCTGTCTTCCTCGTCTCCAGCTGTTCA  
CCATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGG  
CCACATAACGGGTCACCGTATGGCTTGGGATATGATGATGAACTGGTCCCTACAACG  
GCCCTGGTGGTATCGCAGCTGCTCCGGATCCCAAGCTGTCGTGGACATGGTGGCGG  
GGGCCCAATTGGGGAGTCTGGCGGGTCTCGCCTACTATTCCATGGTGGGGAAGTGGGC  
TAAGGTTTTGATTGTGATGCTACTCTTGCTCCCTAATAG

SEQ ID NO 7 (HCC111A)

ATGTTGGGTAAAGTTCATCGATACCCCTTACGTGCGGCTTCGCCGACCTCATGGGGTACA  
TTCCGCTCGTGGCGCCCCCTAGGGGGTGTGCCAGAGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAAGACGGCTGAAGTATGCAACAGGGAATTTGCCTGGTTGCTCTTTCTCTA  
TCTTCCTCTTGGCTTTACTGTCTGTCTGACCATTCAGCTTCGCTTATGAGGTGCGC  
AACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAAGTCAAGCATTGTGTATG  
AGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCCGGGAGAACA  
ACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCGT  
CCCCACTACGACAATACGACGCCACGTGCGATTTGCTCGTTGGGGCGGGCTGCTTTCTGTT  
CCGCTATGTACGTGGGGGATCTCTGCGGATCTGTCTTCCTCGTCTCCAGCTGTTACCC  
ATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCC  
ACATAACAGGTCAACGATGGCTTGGGATATGATGATGAACTGGTAATAG

SEQ ID NO 9 (HCC112A)

ATGCCCGGTTGCTCTTTCTCTATCTTCCTCTTGGCCCTGCTGTCTGTCTGACCATACCA  
GCTTCGCTTATGAAGTGCGCAACGTGTCCGGGGTGTACCATGTACGAACGACTGCT  
CCAAGTCAAGCATAGTGTATGAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGT  
GCCCTGCGTTCCGGAGGGCAACTCCTCCCGTTGCTGGGTGGCGCTCACTCCCACGCTC  
GCGGCCAGGAACGCCAGCGTCCCCACAACGACAATACGACGCCACGTGCGATTTGCTC  
GTTGGGGCTGCTGCTTTCTGTTCCGCTATGTACGTGGGGGATCTCTGCGGATCTGTTTT  
CCTTGTTTCCAGCTGTTACCTTCTCACCTCGCCGGCATCAAACAGTACAGGACTGCA  
ACTGCTCAATCTATCCCGGCCATGTATCAGGTCAACGATGGCTTGGGATATGATGAT  
GAACTGGTCCTAATAG

SEQ ID NO 11 (HCC113A)

ATGTCCGGTTGCTCTTTCTCTATCTTCCTCTTGGCCCTGCTGTCTGTCTGACCATACCA  
GCTTCGCTTATGAAGTGCGCAACGTGTCCGGGGTGTACCATGTACGAACGACTGCT  
CCAAGTCAAGCATAGTGTATGAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGT

Fig. 21C

GCCCTGCGTTCGGGAGGGCAACTCCTCCC GTTGCTGGGTGGCGCTCACTCCCACGCTC  
GCGGCCAGGAACGCCAGCGTCCCCACAACGACAATACGACGCCACGTGCGATTTGCTC  
GTTGGGGCTGCTGCTTTCTGTTCCGCTATGTACGTGGGGGATCTCTGCGGATCTGTTTT  
CCTTGTTTCCCAGCTGTTACCTTCTCACCTCGCCGGCATCAAACAGTACAGGACTGCA  
ACTGCTCAATCTATCCCGGCCATGTATCAGGTCACCGCATGGCTTGGGATATGATGAT  
GAACTGGTAATAG

SEQ ID NO 13 (HCC117A)

ATGCTGGGTAAGGCCATCGATACCCCTTACGTGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCCTCCG  
GGTCTGGAAGACGGCGTGAACATATGCAACAGGGAATTTGCCTGGTTGCTCTTTCTCTA  
TCTTCCTCTTGGCTTTACTGTCTGTCTAACCATTCCAGCTTCCGCTTACGAGGTGCGC  
AACGTGTCCGGGATGTACCATGTCCACGAACGACTGCTCCAACCTCAAGCATTGTGTATG  
AGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCCGGGAGAACAA  
ACTCTTCCCGCTGCTGGGTAGCGGTCACCCCCACGCTCGCGGCTAGGAACGCCAGCAT  
CCCCACTACAACAATACGACGCCACGTGCGATTTGCTCGTTGGGGCGGCTGCTTTCTGTT  
CCGCTATGTACGTGGGGGATCTCTGCGGATCTGTCTTCTCGTCTCCAGCTGTTGACC  
ATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCC  
ACATAACGGGTCAACGATATGGCTTGGGATATGATGATGAACTGGTACTAATAG

SEQ ID NO 15 (HCP51)

ATGCCCGGTTGCTCTTCTCTATCTT

SEQ ID NO 16 (HCP52)

ATGTTGGGTAAGGTCATCGATACCCCT

SEQ ID NO 17 (HCP53)

CTATTAGGACCAGTTCATCATCATATCCCA

SEQ ID NO 18 (HCP54)

CTATTACCAGTTCATCATCATATCCCA

SEQ ID NO 19 (HCP107)

ATACGACGCCACGTGCGATTCCCAGCTGTTCAACCATC

## Fig. 21D

SEQ ID NO 20 (HCP108)

GATGGTGAACAGCTGGGAATCGACGTGGCGTCGTAT

SEQ ID NO 21 (HCC137)

ATGTTGGGTAAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAACATGCAACAGGGAAATTTGCCCGGTTGCTCTTTCTCT  
ATCTTCCTCTTGGCTTTGCTGTCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAACCTCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCCGGGAGAAC  
AACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTGATTCCAGCTGTTACCATCTCGCCTCG  
CCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGT  
CACCGTATGGCTTGGGATATGATGATGAACTGGTCCCTACAACGGCCCTGGTGGTAT  
CGCAGCTGCTCCGATCCACAAAGCTGTCTGGACATGGTGGCGGGGGCCCATTTGGGG  
AGTCCTGGCGGGTCTCGCCTACTATTCCATGGTGGGGAACTGGGCTAAGGTTTTGATTG  
TGATGCTACTCTTTGCTCCCTAATAG

SEQ ID NO 23 (HCC138)

ATGTTGGGTAAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAACATGCAACAGGGAAATTTGCCCGGTTGCTCTTTCTCT  
ATCTTCCTCTTGGCTTTGCTGTCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAACCTCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCCGGGAGAAC  
AACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTGATTCCAGCTGTTACCATCTCGCCTCG  
CCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGT  
CACCGTATGGCTTGGGATATGATGATGAACTGGTAA  
TAG

SEQ ID NO 25 (HCC139)

ATGTTGGGTAAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAACATGCAACAGGGAAATTTGCCCGGTTGCTCTTTCTCT



## Fig. 21E

ATCTTCCTCTTGGCTTTGCTGTCTGTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAACTCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTGCGGAGAAC  
AACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTGCGATTCCCAGCTGTTACCATCTCGCCTCG  
CCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGT  
CACCGTATGGCTTGGGATATGATGATGAACTGGTCGCCTACAACGGGCCCTGGTGGTAT  
CGCAGCTGCTCCGGATCCTCTAATAG

SEQ ID NO 27 (HCC140)

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TTCCGCTCGTGGCGGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAACATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCT  
ATCTTCCTCTTGGCTTTGCTGTCTGTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCCAACTCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTGCGGAGAAC  
AACTCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTGCGATTCCCAGCTGTTACCATCTCGCCTCG  
CCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGT  
CACCGTATGGCTTGGGATATGATGATGAACTGGTCGCCTACAACGGGCCCTGGTGGTAT  
CGCAGCTGCTCCGGATCCTGATCGAGGGCAGACACCATCACCACCATCACTAATAG

SEQ ID NO 29 (HCC162)

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CGCTCGTCGGCGCTCCCGTAGGAGGCGTCGCAAGAGCCCTTGCGCATGGCGTGAGGGC  
CCTTGAAGACGGGATAAATTTGCAACAGGGAATTTGCCCGGTTGCTCCTTTTCTATTT  
TCCTTCTCGCTCTGTTCTCTTGCTTAATTCATCCAGCAGCTAGTCTAGAGTGGCGGAAT  
ACGTCTGCCCTCTATGTCCTTACCAACGACTGTTCCAATAGCAGTATTGTGTACGAGGC  
CGATGACGTTATTCTGCACACACCGGGCTGCATACCTTGTGTCCAGGACGGCAATACA  
TCCACGTGCTGGACCCAGTGACACCTACAGTGGCAGTCAAGTACGTGCGGAGCAACCA  
CCGCTTCGATACGCAGTCAATGTGGACCTATTAGTGGGCGCGGCCACGATGTGCTCTGC  
GCTCTACGTGGGTGACATGTGTGGGGCTGTCTTCTCGTGGGACAAGCCTTCACGTTCA  
GACCTCGTCGCCATCAAACGGTCCAGACCTGTAAGTGTGCTCGCTGTACCCAGGCCATCT  
TTCAGGACATCGAATGGCTTGGGATATGATGATGAACTGGTAATAG

## Fig. 21F

SEQ ID NO 31 (HCC163)

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CGCTCGTAGGCGGCCCCATTGGGGGCGTCGCAAGGGCTCTCGCACACGGTGTGAGGGT  
CCTTGAGGACGGGGTAACTATGCAACAGGGAATTTACCGGTTGCTCTTTCTCTATCT  
TTATTCTTGCTCTTCTCTCGTGTCTGACCGTTCGGGCTCTGCAGTTCCCTACCGAAATG  
CCTCTGGGATTTATCATGTTACCAATGATTGCCCAAACCTCTTCCATAGTCTATGAGGCA  
GATAACCTGATCCTACACGCACCTGGTTGCGTGCCTTGTGTGATGACAGGTAATGTGA  
GTAGATGCTGGGTCCAAATTACCCCTACACTGTCAGCCCCGAGCCTCGGAGCAGTCAC  
GGCTCCTCTTCGGAGAGCCGTTGACTACCTAGCGGGAGGGGCTGCCCTCTGCTCCGCG  
TTATACGTAGGAGACGCGTGTGGGGCACTATTCTTGGTAGGCCAAATGTTACCTATA  
GGCCTCGCCAGCACGCTACGGTGCAGAACTGCAACTGTTCCATTTACAGTGGCCATGT  
TACCGGCCACCGGATGGCATGGGATATGATGATGAACTGGTAATAG

SEQ ID NO 33 (HCP109)

TGGGATATGATGATGAACTGGTC

SEQ ID NO 34 (HCP172)

CTATTATGGTGGTAAKGCCARCARCARGAGCAGGAG

SEQ ID NO 35 (HCOL22A)

TGGGATATGATGATGAACTGGTCGCCTACAACGGCCCTGGTGGTATCGCAGCTGCTCC  
GGATCCCACAAGCTGTCGTGGACATGGTGGCGGGGGCCCCATTGGGGAGTCCTGGCGG  
GCCTCGCCTACTATTCCATGGTGGGGAACCTGGGCTAAGGTTTTGGTTGTGATGCTACTC  
TTTGCCGGCGTCGACGGGCATACCCGCGTGTGAGGAGGGGCGAGCAGCCTCCGATACCA  
GGGGCCTTGTGTCCCTCTTTAGCCCCGGGTGCGCTCAGAAAATCCAGCTCGTAAACAC  
CAACGGCAGTTGGCACATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAAC  
AGGGTTCTTTGCCGCACTATTCTACAAACACAAATTCAACTCGTCTGGATGCCCAGAG  
CGCTTGGCCAGCTGTGCTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTT  
ACACTGAGCCTAACAGCTCGGACCAGAGGGCCCTACTGCTGGCACTACGCGCCTCGACC  
GTGTGGTATTGTACCCGCGTCTCAGGTGTGCGGTCCAGTGTAATTGCTTCACCCCGAGCC  
CTGTTGTGGTGGGGACGACCGATCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAA  
CGACTCGGATGTGCTGATTCTCAACAACACGCGGCCGCCGCGAGGCAACTGGTTCGGC  
TGTACATGGATGAATGGCACTGGGTTACCAAGACGTGTGGGGGGCCCCCGTGCAACA  
TCGGGGGGGGCCGGCAACAACACCTTGACCTGCCCCACTGACTGTTTTCGGAAGCACCC  
CGAGGCCACCTACGCCAGATGCGGTTCTGGGGCCCTGGCTGACACCTAGGTGTATGGTT

Fig. 21G

CATTACCCATATAGGCTCTGGCACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGT  
TAGGATGTACGTGGGGGGCGTGGAGCACAGGTTTGAAGCCGCATGCAATTGGACTCG  
AGGAGAGCGTTGTGACTTGGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTG  
TCTACAACAGAGTGGCAGATACTGCCCTGTTCTTCACCACCCTGCCGGCCCTATCCA  
CCGGCCTGATCCACCTCCATCAGAACATCGTGGACGTGCAATACCTGTACGGTGTAGG  
GTCGGCGGTTGTCTCCCTTGTCAAAATGGGAGTATGTCCTGTTGCTCTTCTTCTCCT  
GGCAGACGCGCGCATCTGCGCCTGCTTATGGATGATGCTGCTGATAGCTCAAGCTGAG  
GCCGCCCTTAGAGAACCTGGTGGTCCTCAATGCCGCGGCCGTGGCCGGGGCGCATGGC  
ACTCTTTCTTCTTCTGTTCTTCTGTGCTGCCTGGTACATCAAGGGCAGGCTGGTCCC  
TGGTGCGGCATACGCCTTCTATGGCGTGTGGCGCTGCTCCTGCTTCTGCTGGCCTTAC  
CACCACGAGCTTATGCCTAGTAA

SEQ ID NO 37 (HCCI41)

GATCCCAACAAGCTGTCTGGACATGGTGGCGGGGGGCCATTGGGGAGTCCTGGCGGG  
CCTCGCCTACTATTCCATGGTGGGGAACCTGGGCTAAGGTTTTGTTGTGATGCTACTCT  
TTGCCGGCGTGCACGGGCATACCCGCGTGTCAAGAGGGGCAGCAGCCTCCGATACCA  
GGGGCCTTGTGTCCCTCTTTAGCCCCGGGTGGGCTCAGAAAATCCAGCTCGTAAACAC  
CAACGGCAGTTGGCACATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAAC  
AGGGTTCTTTGCCGCACTATTCTACAAACACAAATTCAACTCGTCTGGATGCCCAGAG  
CGCTTGGCCAGCTGTGGCTCCATCGACAAGTTGCTCAGGGGTGGGGTCCCTCACTT  
ACACTGAGCCTAACAGCTCGGACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACC  
GTGTGGTATTGTACCCGCGTCTCAGGTGTGCGGTCCAGTGTATTGCTTACCCCCAGCC  
CTGTTGTGGTGGGGACGACCGATCGGTTTTGGTGTCCCCACGTATAACTGGGGGGCGAA  
CGACTCGGATGTGCTGATTCTCAACAACACGCGGCCGCGCAGGCAACTGGTTCGGC  
TGTACATGGATGAATGGCACTGGGTTACCAAGACGTGTGGGGGGCCCCCGTGCAACA  
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CGAGGCCACCTACGCCAGATGCGGTTCTGGGCCCTGGCTGACACCTAGGTGTATGGTT  
CATTACCCATATAGGCTCTGGCACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGT  
TAGGATGTACGTGGGGGGCGTGGAGCACAGGTTTGAAGCCGCATGCAATTGGACTCG  
AGGAGAGCGTTGTGACTTGGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTG  
TCTACAACAGAGTGGCAGAGTGGCAGAGCTTAATTAATTAG

SEQ ID NO 39 (HCCI42)

GATCCCAACAAGCTGTCTGGACATGGTGGCGGGGGGCCATTGGGGAGTCCTGGCGGG  
CCTCGCCTACTATTCCATGGTGGGGAACCTGGGCTAAGGTTTTGTTGTGATGCTACTCT

Fig. 21H

TTGCCGGCGTCGACGGGCATACCCGCGTGTGAGGAGGGGCAGCAGCCTCCGATACCA  
GGGGCCTTGTGTCCCTCTTTAGCCCCGGGTGCGCTCAGAAAATCCAGCTCGTAAACAC  
CAACGGCAGTTGGCACATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAAC  
AGGGTTCTTTGCCGCACTATTCTACAAACACAAATTCAACTCGTCTGGATGCCCAGAG  
CGCTTGGCCAGCTGTGCTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTT  
ACACTGAGCCTAACAGCTCGGACCAGAGGGCCCTACTGCTGGCACTACGCGCCTCGACC  
GTGTGGTATTGTACCCGCGTCTCAGGTGTGCGGTCCAGTGTATTGCTTACCCCGAGCC  
CTGTTGTGGTGGGGACGACCGATCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAA  
CGACTCGGATGTGCTGATTCTCAACAACACGCGGCGCGCCGAGGCAACTGGTTCGGC  
TGTACATGGATGAATGGCACTGGGTTACCAAGACGTGTGGGGGCCCCCGTGCAACA  
TCGGGGGGGGCCGGCAACAACACCTTGACCTGCCCCACTGACTGTTTTCGGAAGCACCC  
CGAGGGCCACCTACGCCAGATGCGGTTCTGGGCCCTGGCTGACACCTAGGTGTATGGTT  
CATTACCCATATAGGCTCTGGCACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGT  
TAGGATGTACGTGGGGGGCGTGGAGCACAGGTTTGAAGCCGCATGCAATTGGACTCG  
AGGAGAGCGTTGTGACTTGGAGGACAGGGATAGATCAGAGCTTAGCCCCGCTGCTGCTG  
TCTACAACAGGTGATCGAGGGGCAGACACCATCACCACCATCACTAATAG

SEQ ID NO 41 (HCC143)

ATGGTGGGGAAGTGGGCTAAGGTTTTGGTGTGATGCTACTCTTTGCCGGCGTCGACG  
GGCATACCCGCGTGTGAGGAGGGGCAGCAGCCTCCGATACCAGGGGCCTTGTGTCCCT  
CTTTAGCCCCGGGTGCGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCAC  
ATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGCCGCAC  
TATTCTACAAACACAAATTCAACTCGTCTGGATGCCCAGAGCGCTTGGCCAGCTGTGCG  
CTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTTACACTGAGCCTAACAGC  
TCGGACCAGAGGGCCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCG  
CGTCTCAGGTGTGCGGTCCAGTGTATTGCTTACCCCGAGCCCTGTTGTGGTGGGGAC  
GACCGATCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAAGCACTCGGATGTGCTG  
ATTCTCAACAACACGCGGCGCGCCGAGGCAACTGGTTCGGCTGTACATGGATGAATG  
GCACTGGGTTACCAAGACGTGTGGGGGGCCCCCGTGCAACATCGGGGGGGCCGGCA  
ACAACACCTTGACCTGCCCCACTGACTGTTTTCGGAAGCACCCCGAGGGCCACCTACGC  
CAGATGCGGTTCTGGGGCCCTGGCTGACACCTAGGTGTATGGTTCATTACCCATATAGG  
CTCTGGCACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGG  
GGGCGTGGAGCACAGGTTTGAAGCCGCATGCAATTGGACTCGAGGAGAGCGTTGTGA  
CTTGGAGGACAGGGATAGATCAGAGCTTAGCCCCGCTGCTGCTGTCTACAACAGAGTGG  
CAGAGCTTAATTAATTAG

## Fig. 21I

SEQ ID NO 43 (HCC144)

ATGGTGGGGAAGTGGGCTAAGGTTTTGGTTGTGATGCTACTCTTTGCCGGCGTCGACG  
GGCATACCCGCGTGTGAGGAGGGGAGCAGCCTCCGATACCAGGGGCGCTTGTGTCCCT  
CTTTAGCCCCGGGTGGGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCAC  
ATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGCCGCAC  
TATTCTACAAACACAAAATCAACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTGTGG  
CTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTTACACTGAGCCTAACAGC  
TCGGACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCG  
CGTCTCAGGTGTGCGGTCCAGTGTATTGCTTCACCCCGAGCCCTGTTGTGGTGGGGAC  
GACCGATCGGTTTTGGTGTCCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTG  
ATTCTCAACAACACGCGGCGCGCGGAGGCAACTGGTTCGGCTGTACATGGATGAATG  
GCACTGGGTTACCAAGACGTGTGGGGGCCCCCGTGAACATCGGGGGGGCGCGGCA  
ACAACACCTTGACCTGCCCCACTGACTGTTTTCGGAAGCACCCCGAGGCCACCTACGC  
CAGATGCGGTTCTGGGCGCTGGCTGACACCTAGGTGTATGGTTCATTACCCATATAGG  
CTCTGGCACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGG  
GGGCGTGGAGCACAGGTTCSAAGCCGCATGCAATTGGAAGTGGAGAGAGCGTTGTGA  
CTTGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTGTCTACAACAGGTGAT  
CGAGGGCAGACACCATCACCACCATCACTAATAG

SEQ ID NO 45 (HCC164)

ATGGTGGCGGGGGGCCATTGGGAGTCCTGGCGGGCCTCGCCTACTATTCCATGGTGG  
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CCGCGTGTGAGGAGGGGAGCAGCCTCCGATACCAGGGGCGCTTGTGTCCCTCTTTAGC  
CCCGGGTGGGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCACATCAAC  
AGGACTGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGCCGCACTATTCT  
ACAAACACAAATTCAACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTGTGCTCCAT  
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CAGAGGCCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCGCGTCTC  
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GCGGTTCTGGGCGCTGGCTGACACCTAGGTGTATGGTTCATTACCCATATAGGCTCTGG  
CACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGGGGGCG

Fig. 21J

TGGAGCACAGGTTTGAAGCCGCATGCAATTGGACTCGAGGAGAGCGTTGTGACTTGGA  
GGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTGTCTACAACAGAGTGGCAGATA  
CTGCCCTGTTCTTCACCACCCTGCCGGCCCTATCCACCGGCCTGATCCACCTCCATCA  
GAACATCGTGGACGTGCAATACCTGTACGGTGTAGGGTCGGCGGTTGTCTCCCTTGTC  
ATCAAATGGGAGTATGTCCTGTTGCTCTTCCTTCTCCTGGCAGACGCGCGCATCTGCGC  
CTGCTTATGGATGATGCTGCTGATAGCTCAAGCTGAGGCCGCTTAGAGAACCTGGTG  
GTCCTCAATGCGGCGGCCGTGGCGGGGCGCATGGCACTCTTTCCTTCCTTGTTCTT  
CTGTGCTGCCTGGTACATCAAGGGCAGGCTGGTCCCTGGTGCGGCATACGCCTTCTAT  
GGCGTGTGGCCGCTGCTCCTGCTTCTGCTGGCCTTACCACCACGAGCTTATGCCTAGTAA

SEQ ID NO 47 (HCC165)

AATTTGGGTAAGGTTCATCGATACCTTACATGCGGCTTCGCCGACCTCGTGGGGTACA  
TTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCG  
GGTTCTGGAGGACGGCGTGAACATATGCAACAGGGAATTTGCCCGGTTGCTCTTCTCT  
ATCTTCCTCTTGGCTTTGCTGTCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCG  
CAACGTGTCCGGGATGTACCATGTACGAAACGACTGCTCCAACCTCAAGCATTGTGTAT  
GAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCTGCGTTCCGGGAGAAC  
AACTCTTCCCCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCG  
TCCCCACCACGACAATACGACGCCACGTGATTTGCTCGTTGGGGCGGCTGCTTTCTG  
TTCCGCTATGTACGTGGGGGACCTCTGCGGATCTGTCTTCTCGTCTCCCAGCTGTTCA  
CCATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGG  
CCACATAACGGGTCACCGTATGGCTTGGGATATGATGATGAACTGGTCGCCTACAACG  
GCCCTGGTGGTATCGCAGCTGCTCCGGATCCCACAAGCTGTGCTGGACATGGTGGCGG  
GGGCCCATTTGGGGAGTCTTGGCGGGCCTCGCCTACTATTCCATGGTGGGGAACTGGGC  
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GAGGGGCAGCAGCCTCCGATACCAGGGGCCTTGTGTCCCTCTTTAGCCCCGGGTGCGC  
TCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCACATCAACAGGACTGCCCT  
GAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGCCGCACTATTCTACAAACACAAA  
TTCAACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTGTGCTCCATCGACAAGTTCC  
CTCAGGGGTGGGGTCCCCTCACTTACACTGAGCCTAACAGCTCGGACCAGAGGGCCCTA  
CTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCGCGTCTCAGGTGTGCGGT  
CCAGTGTATTGCTTCACCCCGAGCCCTGTTGTGGTGGGGACGACCGATCGGTTTGGTGT  
CCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTGATTCTCAACAACACGCGG  
CCGCCGCGAGGCAACTGGTTCGGCTGTACATGGATGAATGGCACTGGGTTTACCAAGA  
CGTGTGGGGGGCCCCCGTGCAACATCGGGGGGGCGGCAACAACACCTTGACCTGCC

Fig. 21K

CCACTGACTGTTTTCGGAAGCACCCCGAGGCCACCTACGCCAGATGCGGTTCTGGGCC  
CTGGCTGACACCTAGGTGTATGGTTCATTACCCATATAGGCTCTGGCACTACCCCTGCA  
CTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGGGGGCGTGGAGCACAGGTT  
CGAAGCCGCATGCAATTGGA CTGAGGAGAGCGTTGTGACTTGGAGGACAGGGATAG  
ATCAGAGCTTAGCCCGCTGCTGCTGTCTACAACAGAGTGGCAGATACTGCCCTGTTCC  
TTCACCACCCCTGCCGGCCCTATCCACCGGCCTGATCCACCTCCATCAGAACATCGTGG  
ACGTGCAATACCTGTACGGTGTAGGGTCGGCGGTTGTCTCCCTTGTCA TCAAATGGGA  
GTATGTCTGTGCTCTTCTCTCTCTGTCAGACGCGCGCATCTGCGCCTGCTTATGGA  
TGATGCTGCTGATAGCTCAAGCTGAGGCCGCTTAGAGAACCTGGTGGTCTCAATGC  
GGCGGCCGTGGCCGGGGCGCATGGCACTCTTCTCTCTGTGTTCTTCTGTGCTGCCT  
GGTACATCAAGGGCAGGCTGGTCCCTGGTGGCGCATACGCCCTTCTATGGCGTGTGGCC  
GCTGCTCCTGCTTCTGCTGGCCTTACCACCACGAGCTTATGCCTAGTAAGCTT

SEQ ID NO 49 (HCC166)

ATGAGCACGAATCCTAAACCTCAAAGAAAAACCAAACGTAACACCAACCGCCGCCCA  
CAGGACGTCAAGTTCCCGGGCGGTGGTCAGATCGTTGGTGGAGTTTACCTGTTGCCGC  
GCAGGGGGCCCCAGGTTGGGTGTGCGCGCGACTAGGAAGACTTCCGAGCGGTGCGAAC  
CTCGTGGGAGGCGACAACCTATCCCCAAGGCTCGCCGACCCGAGGGTAGGGCCTGGG  
CTCAGCCCGGGTACCCTTGGCCCTCTATGGCAATGAGGGCATGGGGTGGGCAGGATG  
GCTCCTGTCAACCCGCGGCTCTCGGCCTAGTTGGGGCCCTACAGACCCCGGCGTAGG  
TCGCGTAATTTGGGTAAAGGTCA TCGATACCCCTACATGCGGCTTCGCCGACCTCGTGG  
GGTACATTCCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGG  
CGTCCGGGTTCTGGAGGACGGCGTGA ACTATGCAACAGGGAATTTGCCCGTTGCTCT  
TTCTCTATCTTCTCTTGGCTTTGCTGTCTGTCTGACCGTTCCAGCTTCCGCTTATGAA  
GTGCGCAACGTGTCCGGGATGTACCATGTCACGAACGACTGCTCCAACTCAAGCATTG  
TGTATGAGGCAGCGGACATGATCATGCACACCCCGGGTGCCTGCCCTGCGTTCGGGA  
GAACAACCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCC  
AGCGTCCCCACCACGACAATACGACGCCACGTCGATTTGCTCGTTGGGGCGGCTGCTT  
TCTGTTCCGCTATGTACGTGGGGGACCTCTGCGGATCTGTCTTCTCTGCTCTCCAGCTG  
TTCACCATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATCTATC  
CCGGCCACATAACGGGTCACCGTATGGCTTGGGATATGATGATGAACTGGTCGCCTAC  
AACGGCCCTGGTGGTATCGCAGCTGCTCCGGATCCCACAAGCTGTCTGTGGACATGGTG  
GCGGGGGCCCCATTGGGGAGTCTTGGCGGGCCTCGCCTACTATTCCATGGTGGGGAACT  
GGGCTAAGGTTTTGGTTGTGATGCTACTCTTTGCCGGCGCTCGACGGGCATACCCGCGT  
GTCAGGAGGGGCAGCAGCCTCCGATACCAGGGGCCTTGTGTCCCTCTTTAGCCCCGGG

Fig. 21L

TCGGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCACATCAACAGGACT  
GCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGCCGCACTATTCTACAAAC  
ACAAATTCAACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTGTGCTCCATCGACAA  
GTTGCTCAGGGGTGGGGTCCCCTCACTTACACTGAGCCTAACAGCTCGGACCAGAGG  
CCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCGCGTCTCAGGTGT  
GCGGTCCAGTGTATTGCTTCACCCGAGCCCTGTTGTGGTGGGGACGACCGATCGGTT  
TGGTGTCCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTGATTCTCAACAAC  
ACGCGGGCCCGCGAGGCAACTGGTTGGCTGTACATGGATGAATGGCACTGGGTTCA  
CCAAGACGTGTGGGGGCCCCCGTGCAACATCGGGGGGGCGGCAACAACACCTTGA  
CCTGCCCCACTGACTGTTTTCGGAAGCACCCGAGGCCACCTACGCCAGATGCGGTTT  
TGGGCCCTGGCTGACACCTAGGTGTATGGTTCAATTACCCATATAGGCTCTGGCACTAC  
CCCTGCACTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGGGGGCGTGGAGC  
ACAGGTTCCGAAGCCGCATGCAATTGGACTCGAGGAGAGCGTTGTGACTTGGAGGACA  
GGGATAGATCAGAGCTTAGCCCGCTGCTGCTGTCTACAACAGAGTGGCAGATACTGCC  
CTGTTCCCTTCAACCACCTGCCGGCCCTATCCACCGGCCTGATCCACCTCCATCAGAAC  
ATCGTGGACGTGCAATACCTGTACGGTGTAGGGTCGGCGGTTGTCTCCCTTGTCAATCA  
AATGGGAGTATGTCTGTTGCTCTTCTCTCTGTCAGACCGCGCATCTGCGCCTGC  
TTATGGATGATGCTGCTGATAGCTCAAGCTGAGGCCGCTTAGAGAACCTGGTGGTCC  
TCAATGCGGCGGCGGTGGCCGGGCGCATGGCACTCTTTCCTTCTTGTGTTCTTCTGT  
GCTGCCTGGTACATCAAGGGCAGGCTGGTCCCTGGTGCGGCATACGCCTTCTATGGCG  
TGTGGCCGCTGCTCCTGCTTCTGCTGGCCTTACCACCACGAGCTTATGCCTAGTAA



# Fig. 22

OD measured at 450 nm  
construct

Fraction	volume	dilution	39 Type 1b	40 Type 1b	62 Type 3a	63 Type 5a
- START	23 ml	1/20	2.517	1.954	1.426	1.141
FLOW THROUGH	23 ml	1/20	0.087	0.085	0.176	0.120
1	0.4 ml	1/200	0.102	0.051	0.048	0.050
2			0.396	0.550	0.090	0.067
3			2.627	2.603	2.481	2.372
4			3	2.967	3	2.694
5			3	2.810	2.640	2.154
6			2.694	2.499	1.359	1.561
7			2.408	2.481	0.347	1.390
8			2.176	1.970	1.624	0.865
9			1.461	1.422	0.387	0.604
10			1.236	0.926	0.543	0.519
11			0.981	0.781	0.294	0.294
12			0.812	0.650	0.249	0.199
13			0.373	0.432	0.239	0.209
14			0.653	0.371	0.145	0.184
15			0.441	0.348	0.151	0.151
16			0.321	0.374	0.098	0.106
17			0.525	0.186	0.099	0.108
18			0.351	0.171	0.083	0.090
19			0.192	0.164	0.084	0.087

Fig. 23

Figure 24

Fraction	volume	dilution	OD measured at 450 nm			
			construct			
			39 Type 1b	40 Type 1b	62 Type 3a	63 Type 5a
20	250 $\mu$ l	1/200	0.072	0.130	0.096	0.051
21			0.109	0.293	0.084	0.052
22			0.279	0.249	0.172	0.052
23			0.093	0.151	0.297	0.054
24			0.080	0.266	0.438	0.056
25			0.251	0.100	0.457	0.048
26			3	1.649	0.722	0.066
27			3	3	2.526	0.889
28			3	3	3	2.345
29			3	3	2.849	2.580
30			2.227	1.921	1.424	1.333
31			0.263	0.415	0.356	0.162
32			0.071	0.172	0.154	0.064
33			0.103	0.054	0.096	0.057
34			0.045	0.045	0.044	0.051
35			0.043	0.047	0.045	0.046
36			0.045	0.045	0.049	0.040
37			0.045	0.047	0.046	0.048
38			0.046	0.048	0.047	0.057
39			0.045	0.048	0.050	0.057
40			0.046	0.049	0.048	0.049

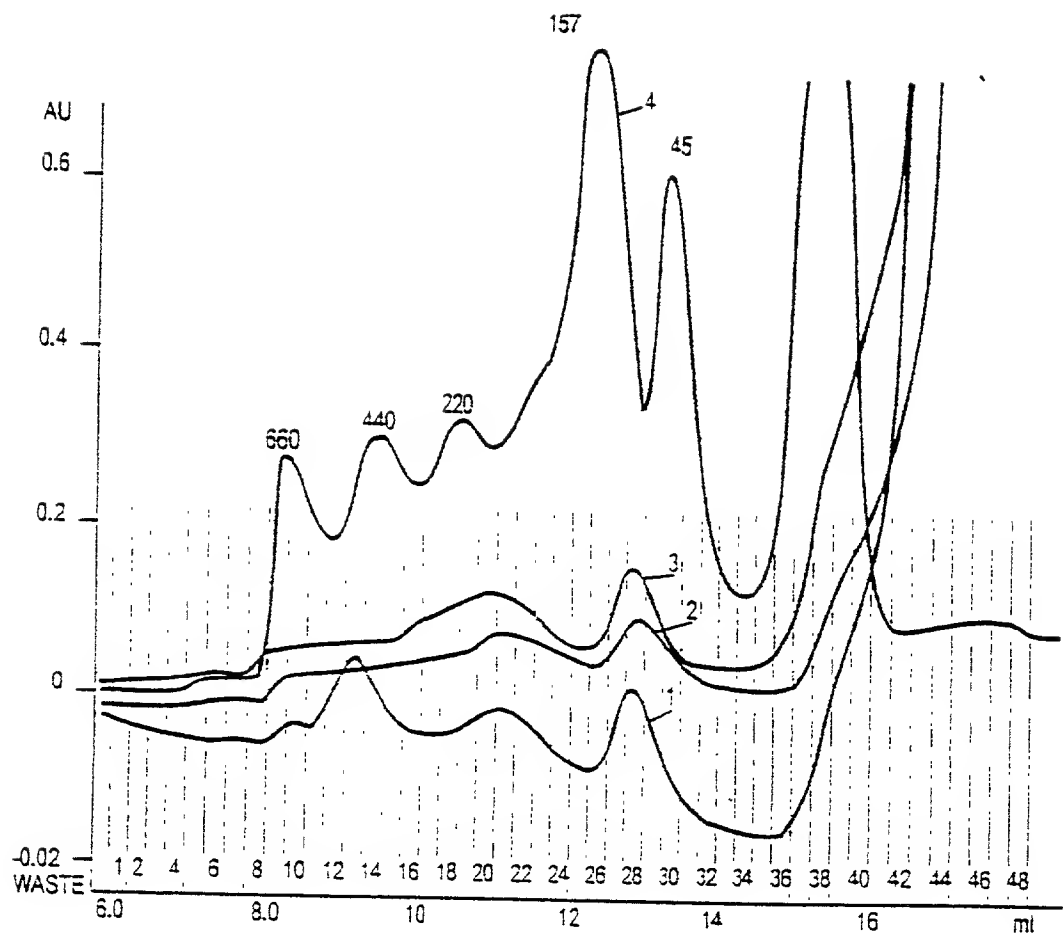


Fig. 25

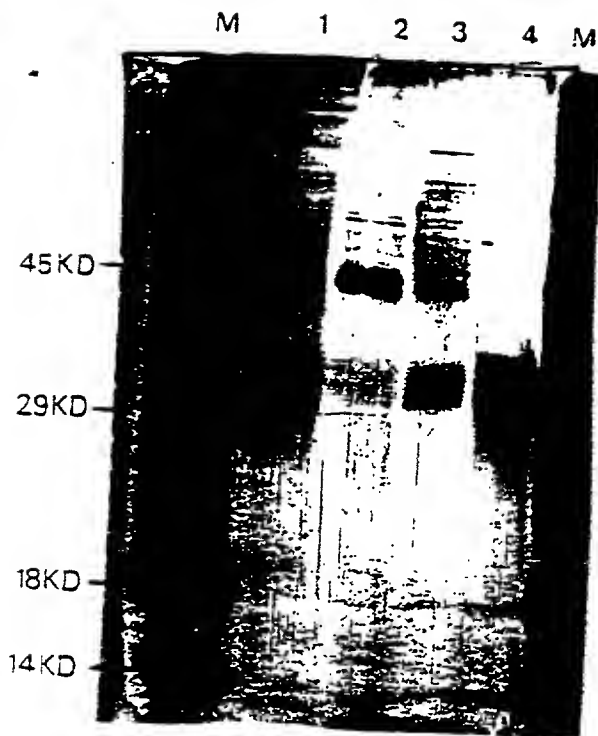


Fig. 26

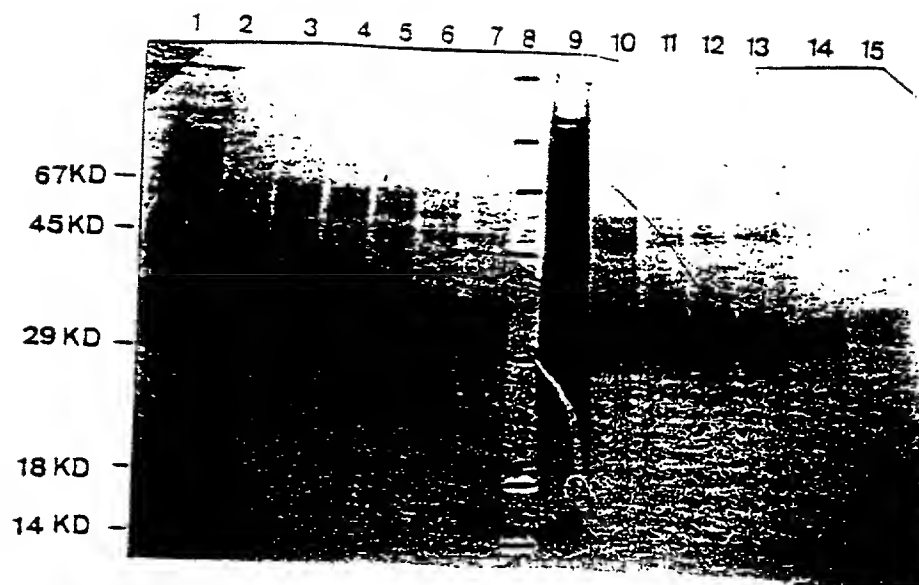


Fig.27

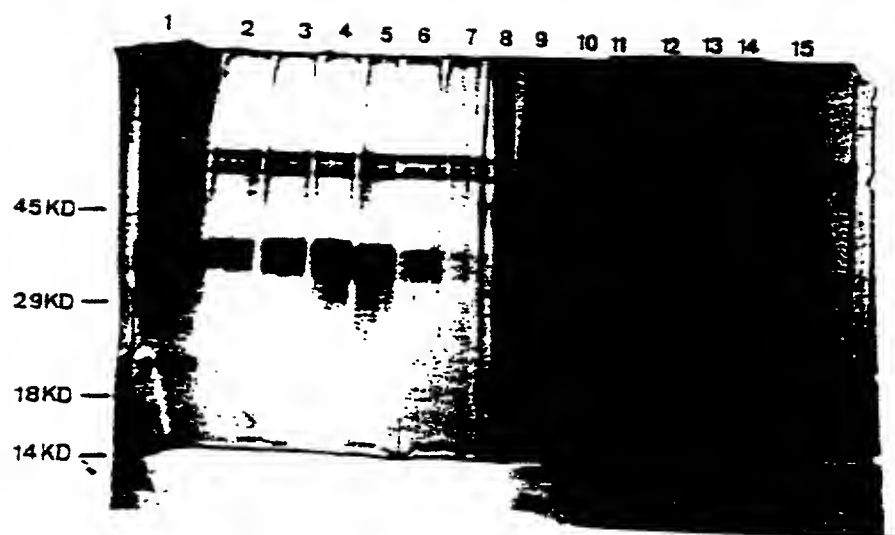


Fig.28

M 1 2 3 4 5 6

Fig.29

67 kD -

45 kD -

29 kD -

18 kD -

14 kD -

Lane 1: Crude Lysate  
 Lane 2: Flow through Lentil Chromatography  
 Lane 3: Wash with EMPIGEN Lentil Chromatography  
 Lane 4: Eluate Lentil Chromatography  
 Lane 5: Flow through during concentration lentil eluate  
 Lane 6: Pool of E1 after Size Exclusion Chromatography

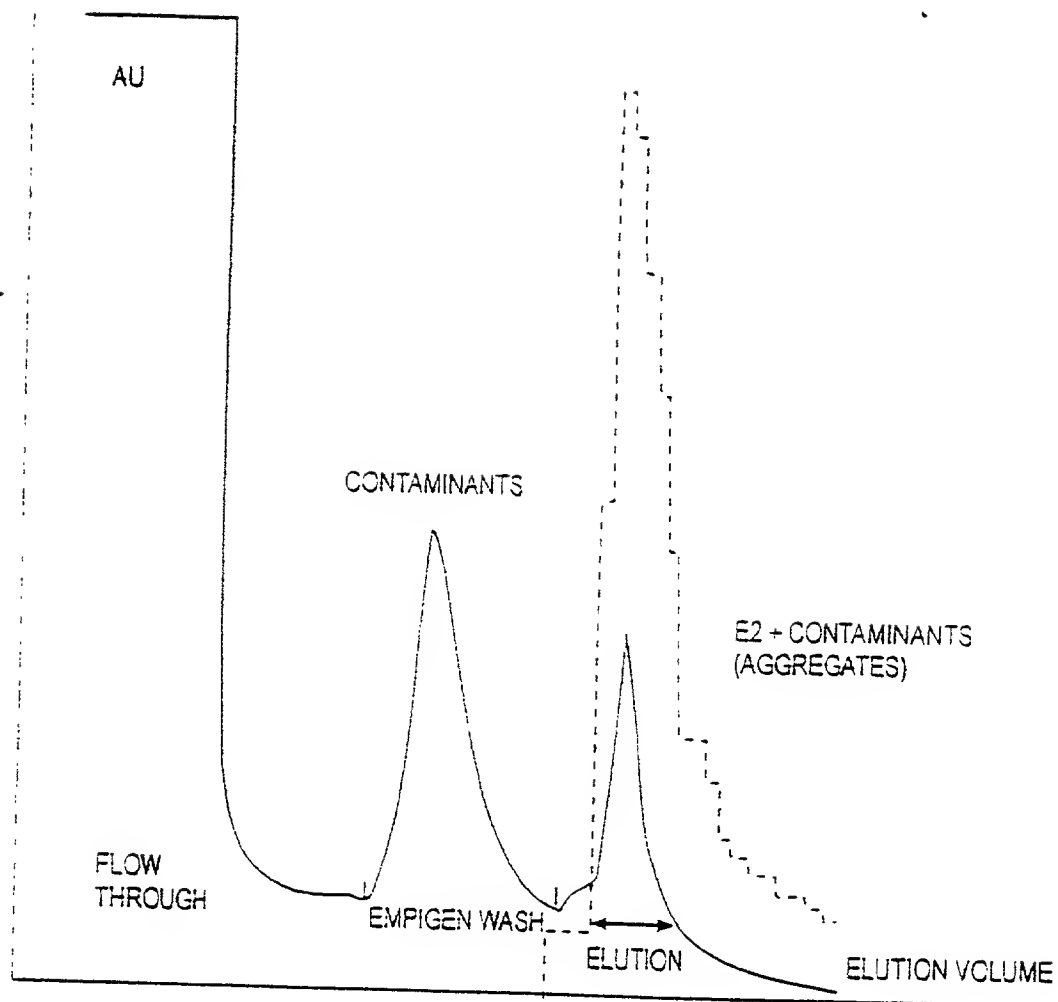
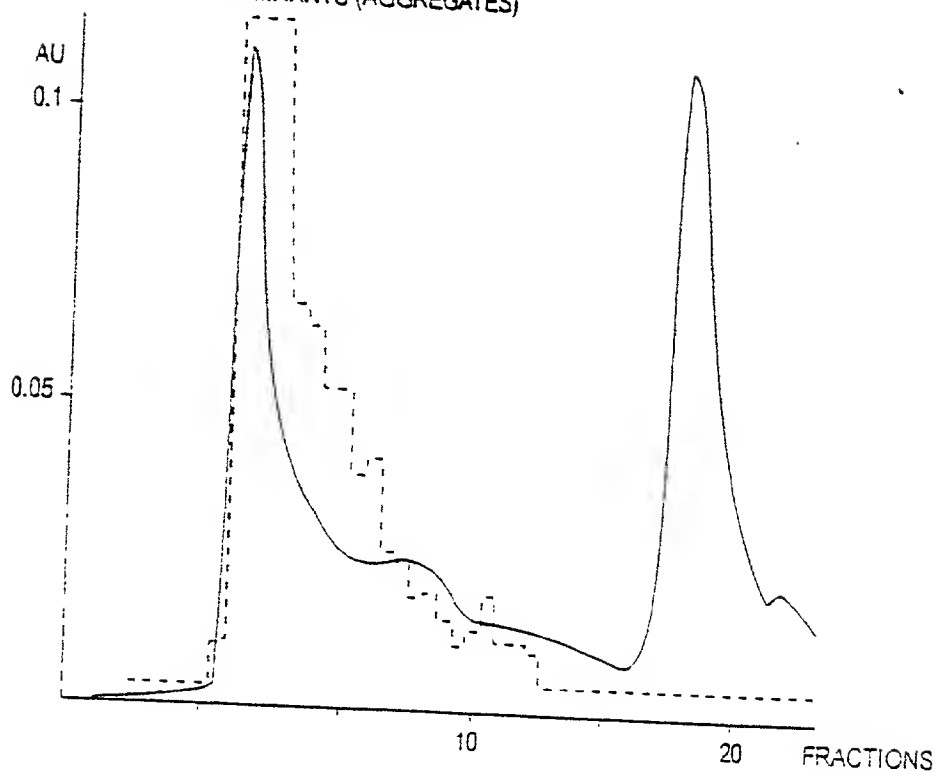


Fig. 30

NON - REDUCED

Fig. 31A

E2 + CONTAMINANTS (AGGREGATES)



REDUCED

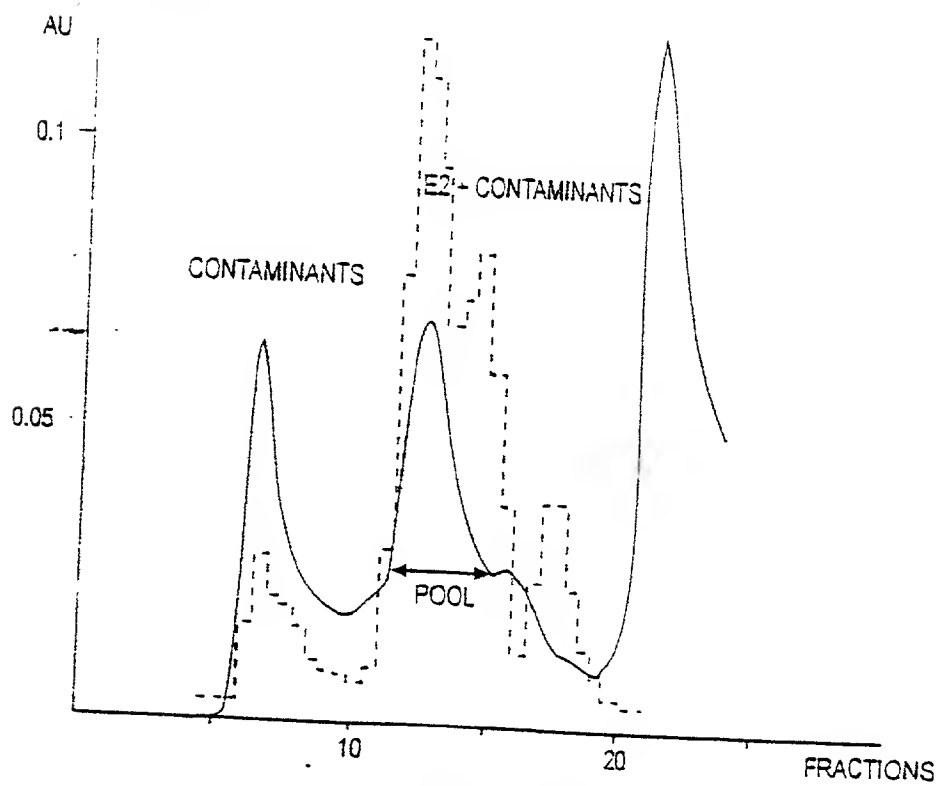
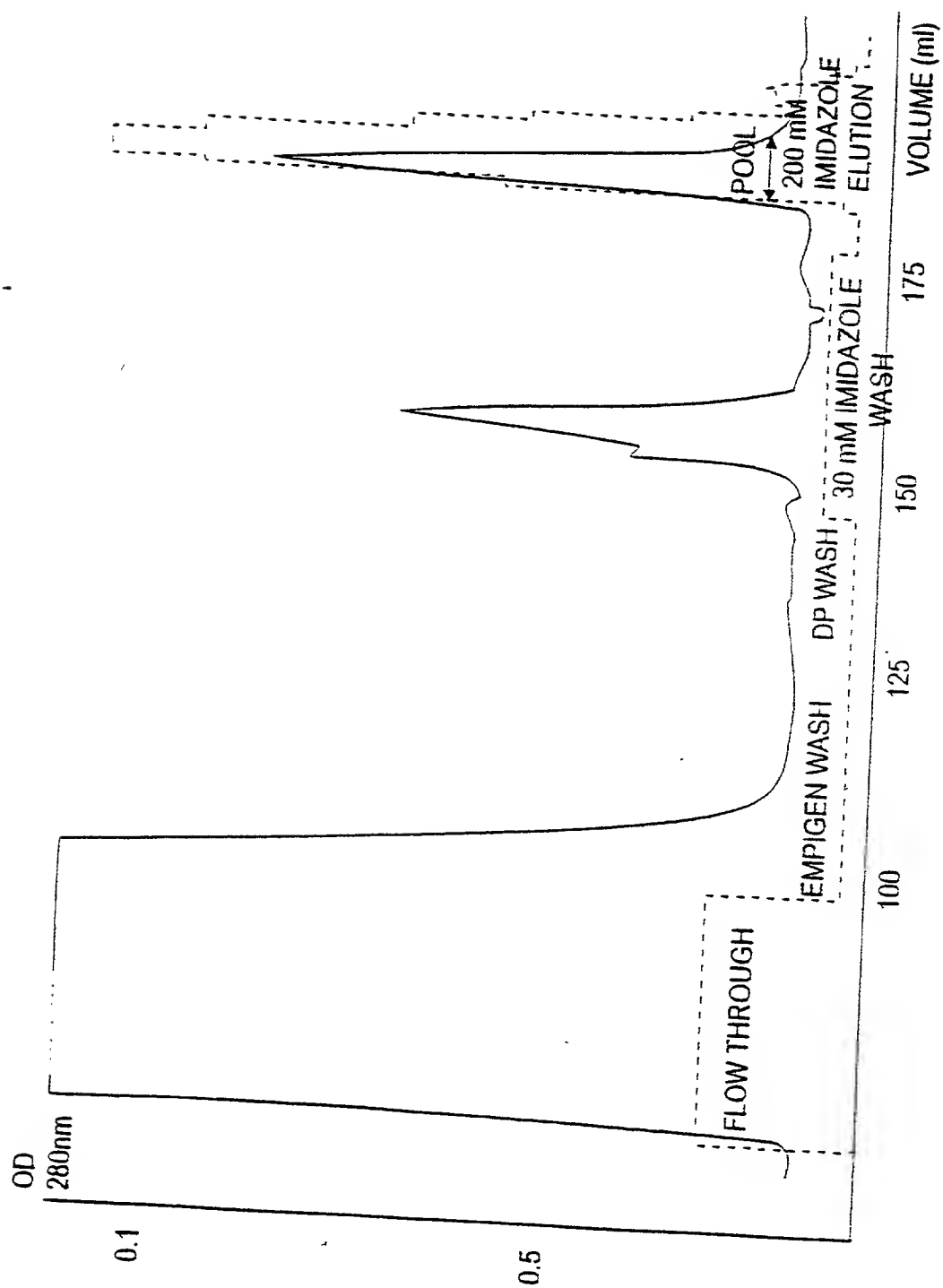
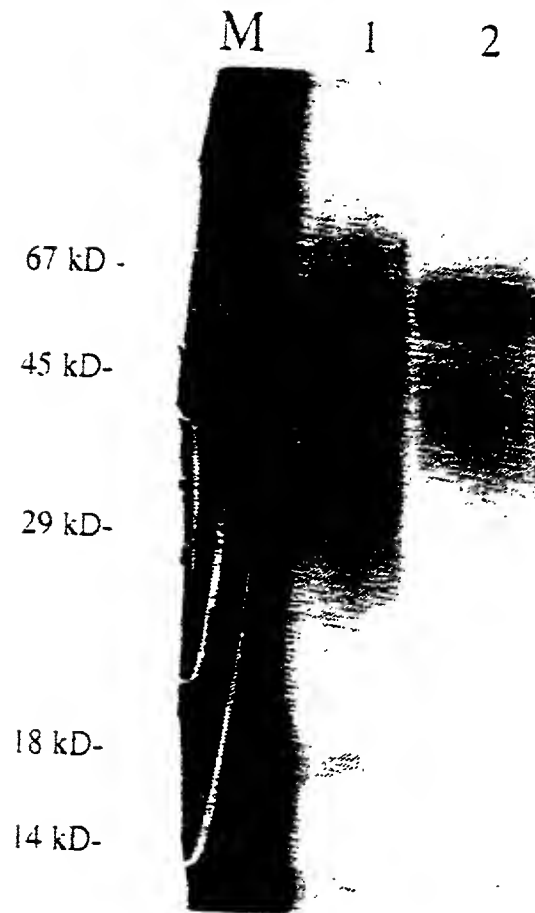


Fig. 31B



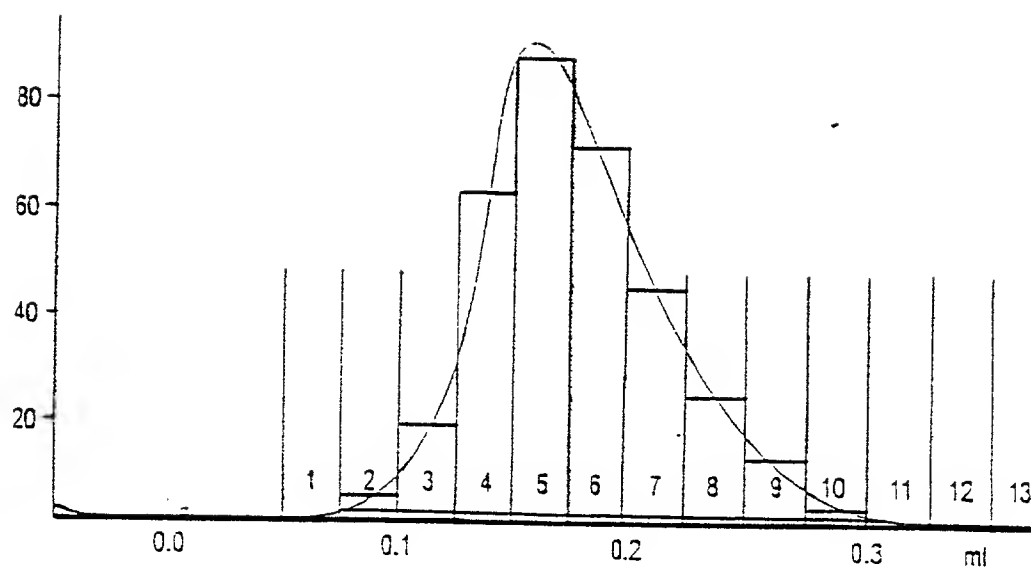


# SILVER STAIN OF PURIFIED E2



1. 30 mM IMIDAZOLE WASH Ni-IMAC
2. 0.5 ug E2

Fig.33



No.	Ret. (ml)	Peak start (ml)	Peak end (ml)	Dur (ml)	Area (ml* $\mu$ AU)	Height ( $\mu$ AU)
1	-0.45	-0.46	-0.43	0.04	0.0976	4.579
2	1.55	0.75	3.26	2.51	796.4167	889.377
3	3.27	3.26	3.31	0.05	0.0067	0.224
4	3.33	3.32	3.33	0.02	0.0002	0.018

Total number of detected peaks = 4  
 Total Area above baseline = 0.796522 ml\*AU  
 Total area in evaluated peaks = 0.796521 ml\*AU  
 Ratio peak area / total area = 0.999999  
 Total peak duration = 2.613583 ml

Fig. 34

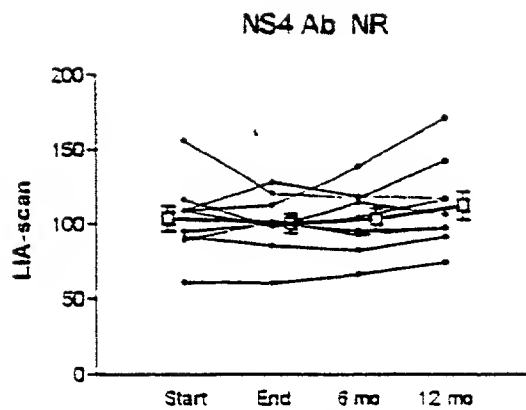


Fig. 35A-1

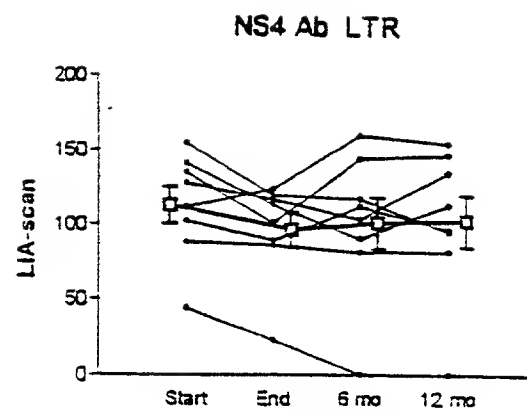


Fig. 35A-2

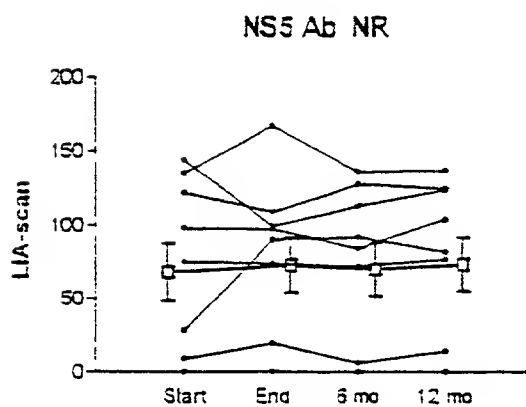


Fig. 35A-3

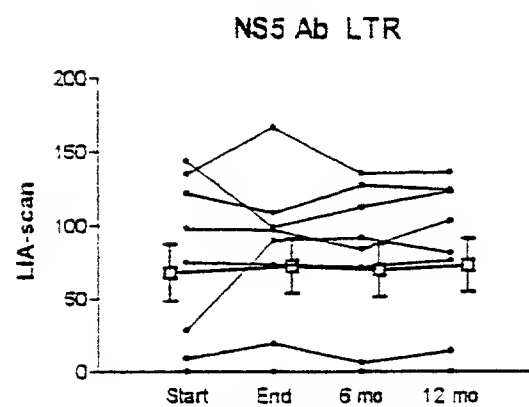


Fig. 35A-4

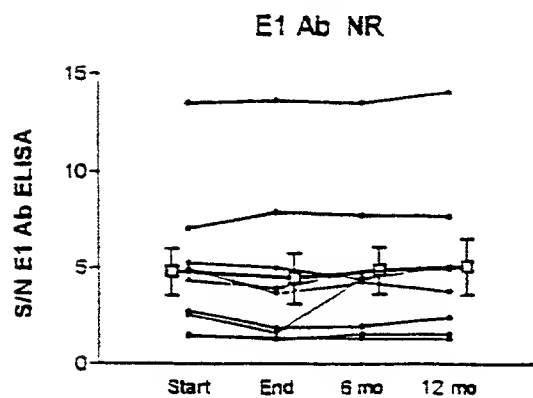


Fig. 35A-5

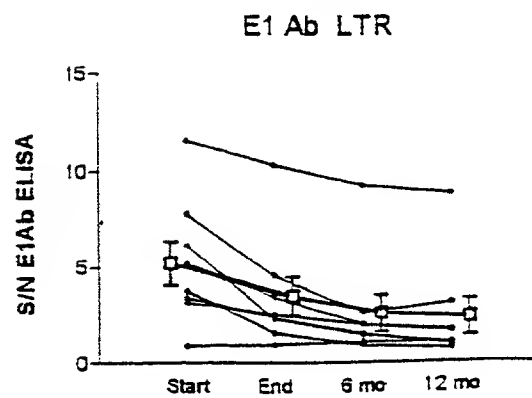


Fig. 35A-6

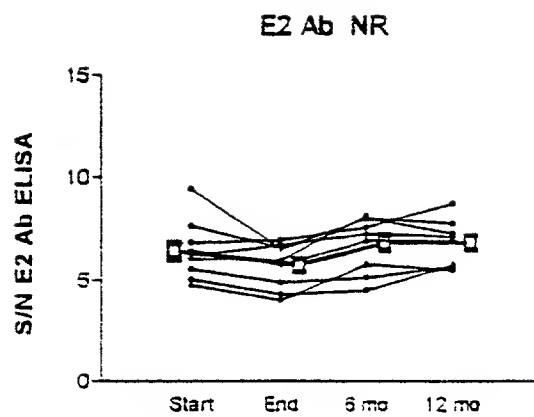


Fig. 35A-7

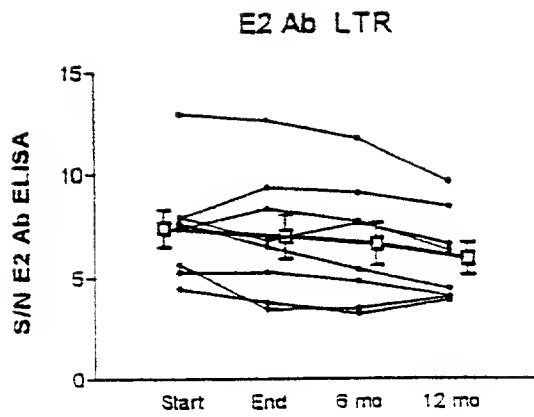


Fig. 35A-8

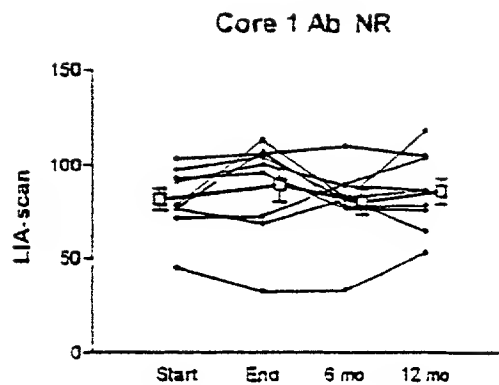


Fig. 35B-1

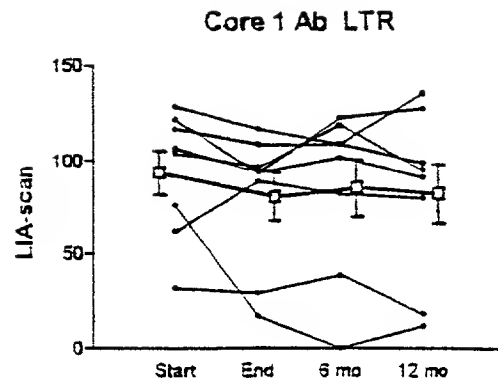


Fig. 35B-2

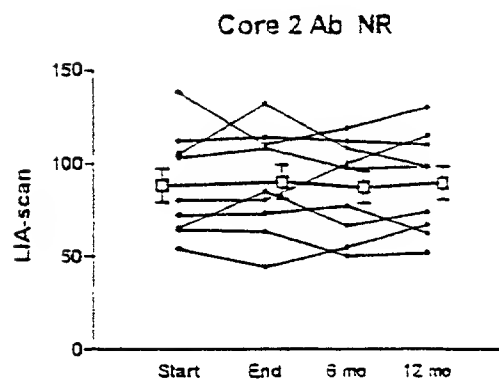


Fig. 35B-3

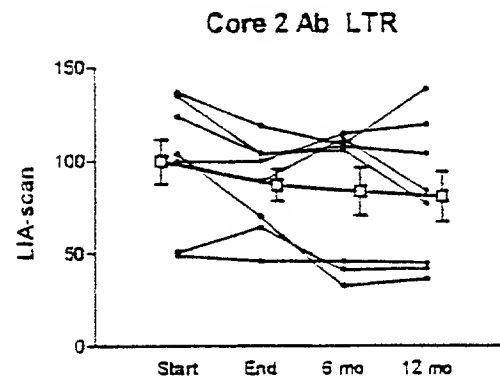


Fig. 35B-4

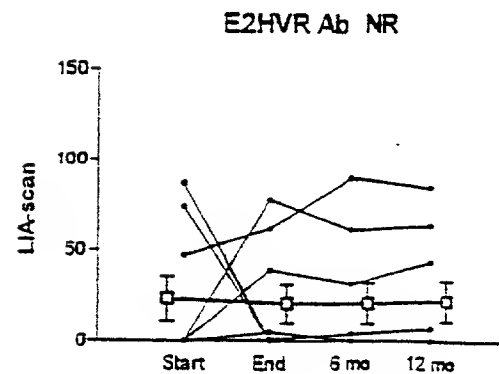


Fig. 35B-5

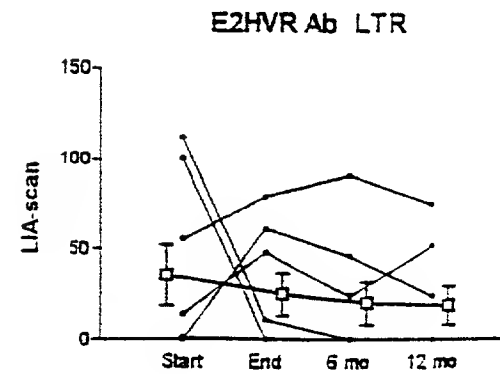


Fig. 35B-6

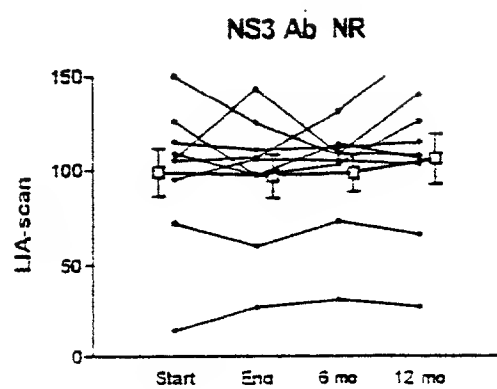


Fig. 35B-7

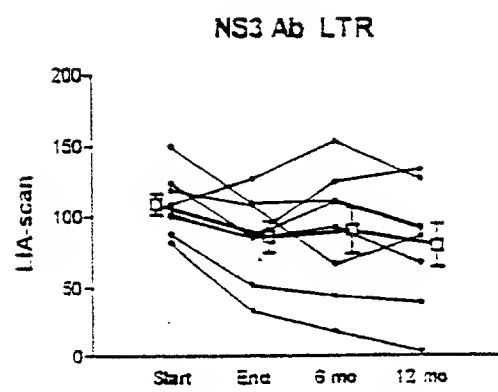


Fig. 35B-8

Fig. 36A

E1 Ab

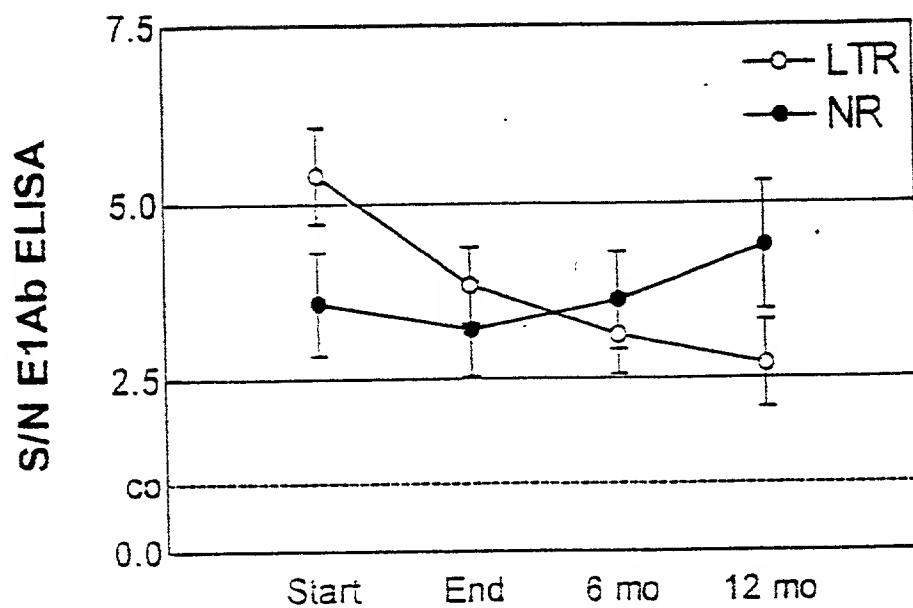


Fig. 36B

E2 Ab

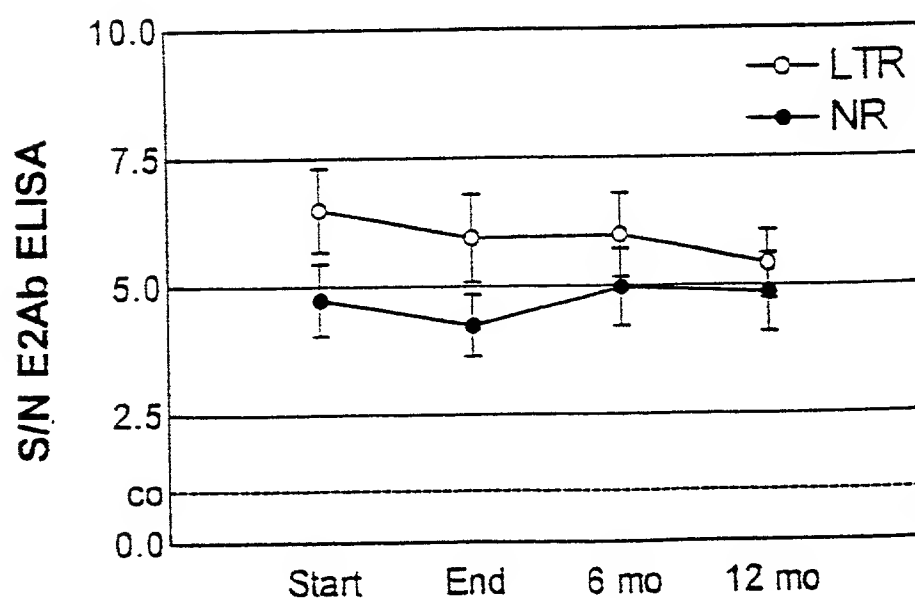




Fig. 37A  
Non Responders

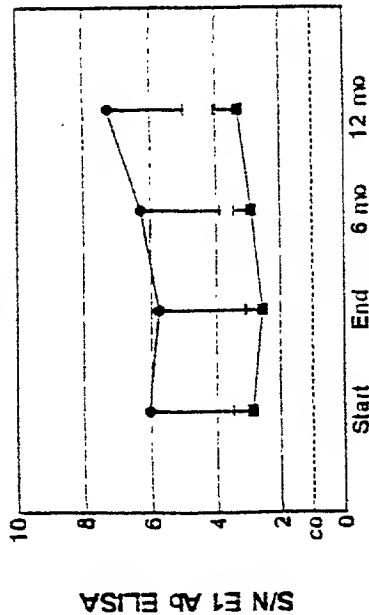


Fig. 37B  
Long Term Responders

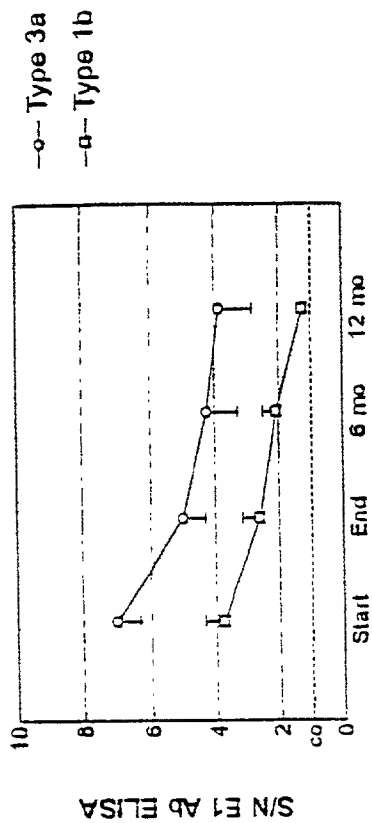


Fig. 37C  
Type 1b

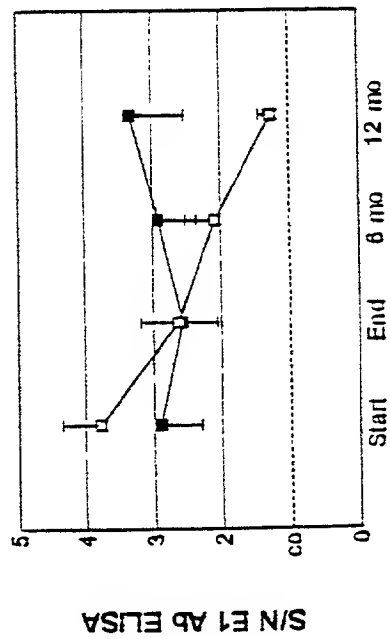


Fig. 37D  
Type 3a

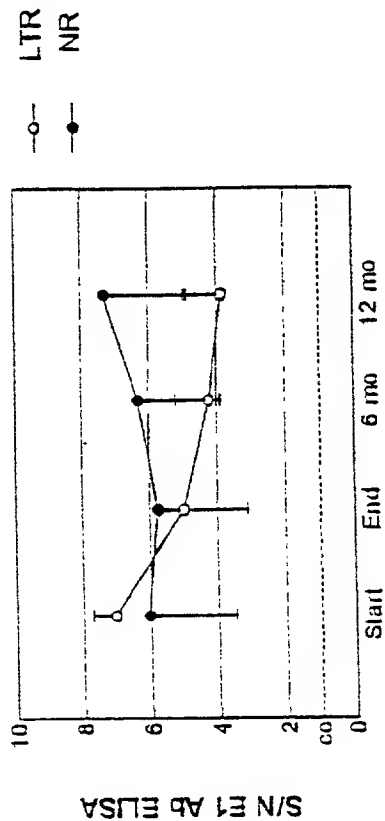
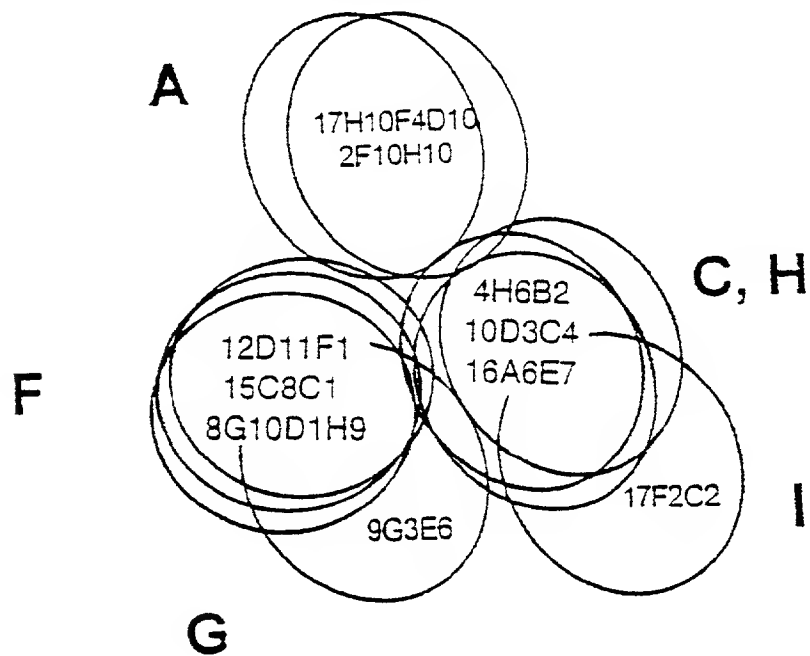


Fig. 38

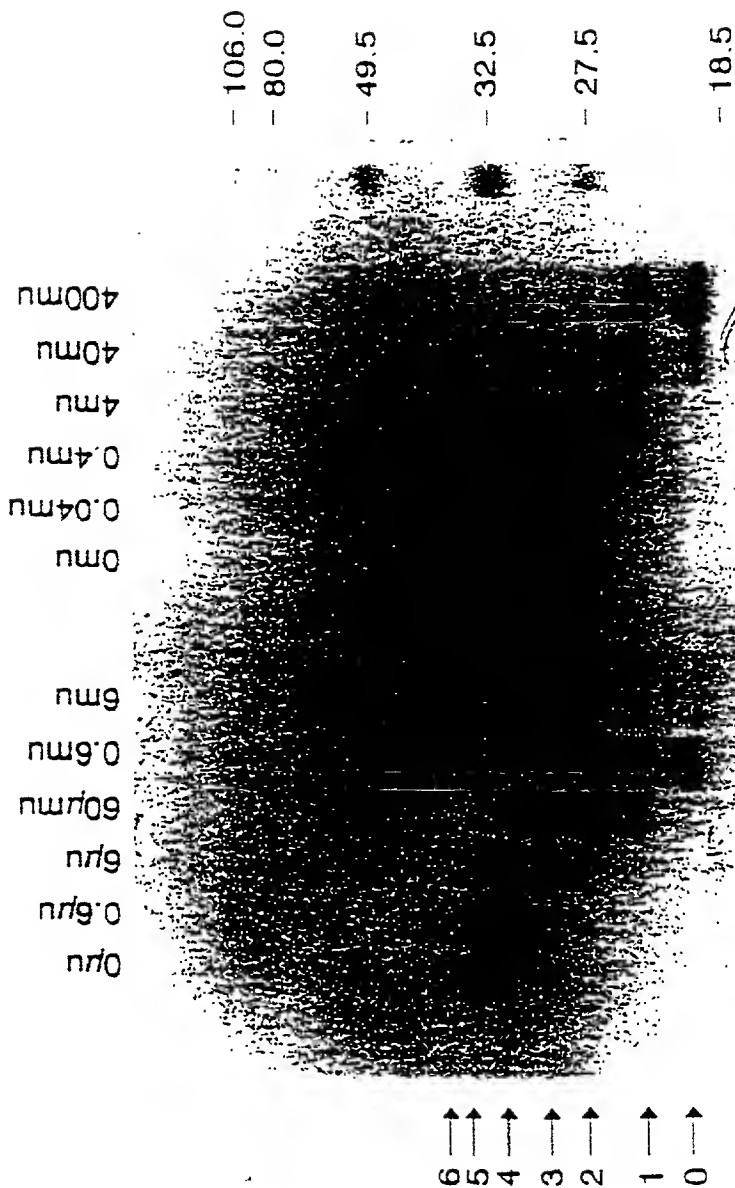
Relative Map Positions of  
anti-E2 monoclonal antibodies



# PARTIAL DEGLYCOSYLATION OF HCV E1 ENVELOPE PROTEIN

Fig.39

Endoglycosidase H (Endo H)	Glycopeptidase F (PNGase F)
0.7u	0.7u
0.6u	0.6u
6u	6u
60u	60u
0.6mu	0.6mu
6mu	6mu
0.6mu	0.6mu
6mu	6mu
0.4mu	0.4mu
4mu	4mu
40mu	40mu
400mu	400mu



# PARTIAL TREATMENT OF HCV E2\E2s ENVELOPE PROTEINS BY PNGase F

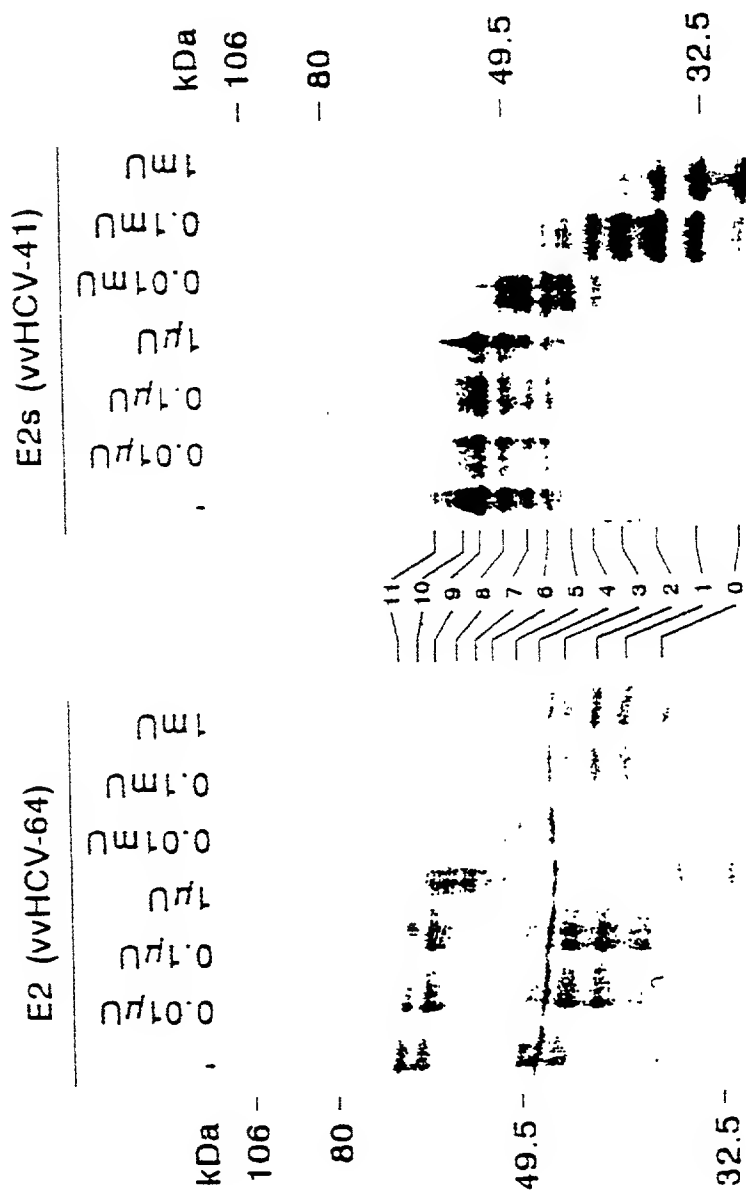
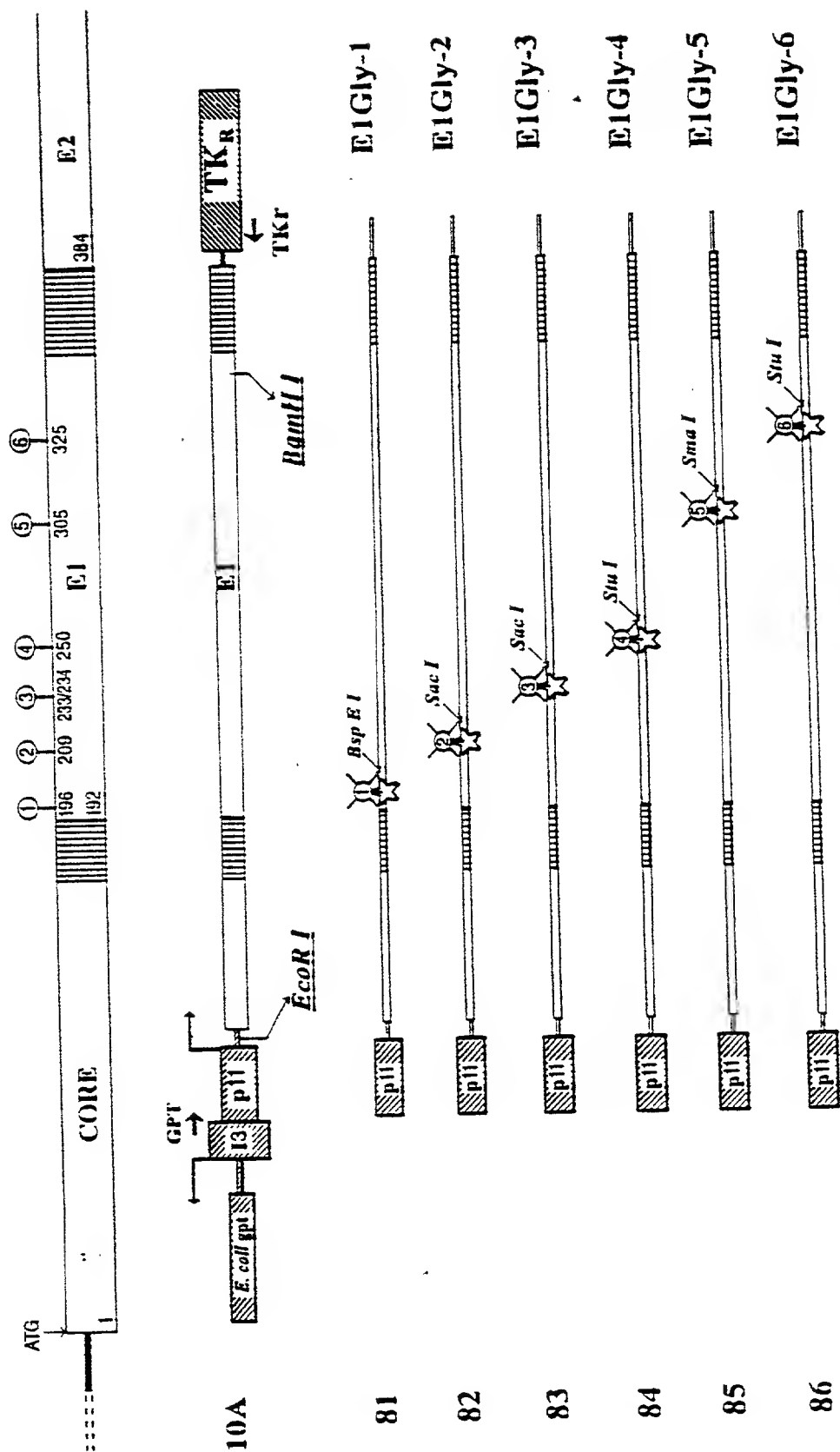
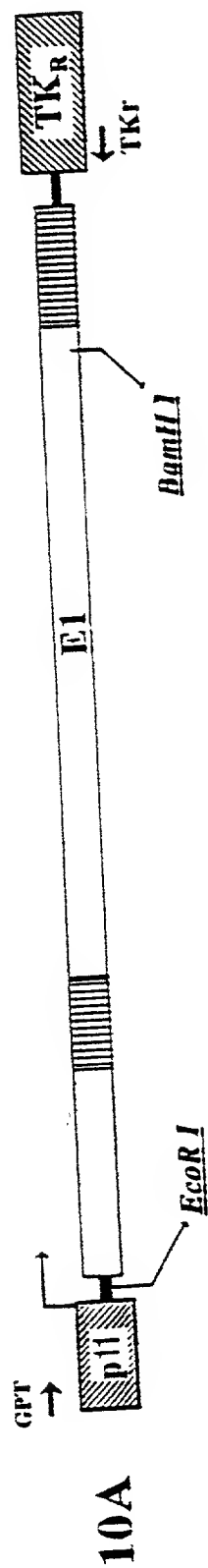


Fig. 40

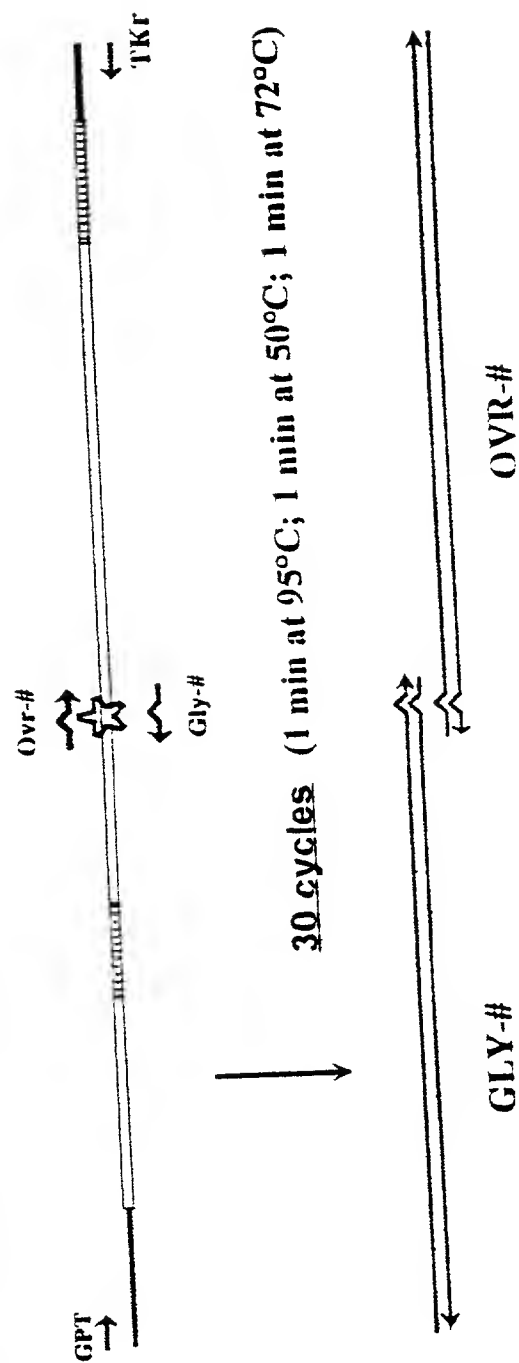
Fig. 41 *In Vitro* Mutagenesis of HCV E1 glycoprotein



**Fig. 42A** *In Vitro* Mutagenesis of HCV E1 glycoprotein



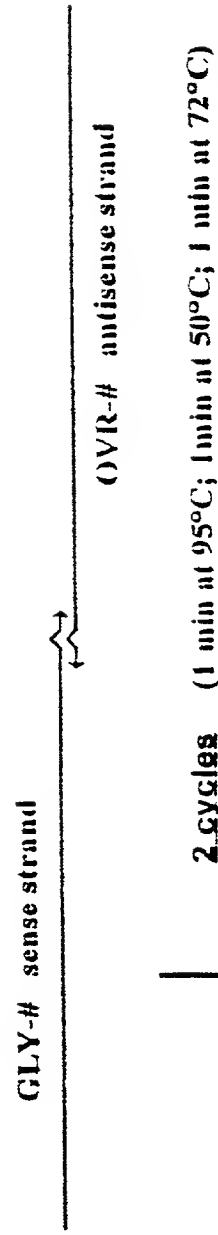
1. First step of PCR amplification (Gly-# and Ovr-# primers)



## 2. Overlap extension and nested PCR

Fig. 42B

### a. Overlap extension



### b. Nested PCR amplification (GPT-2 and TKR-2 primers)

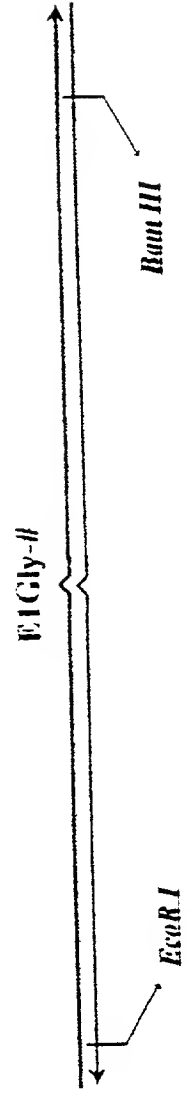
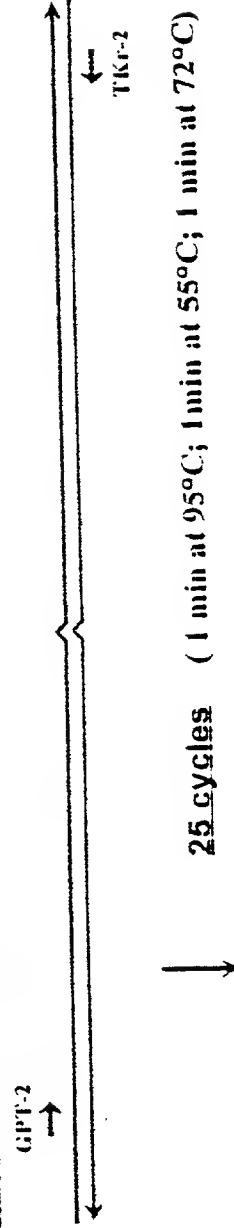
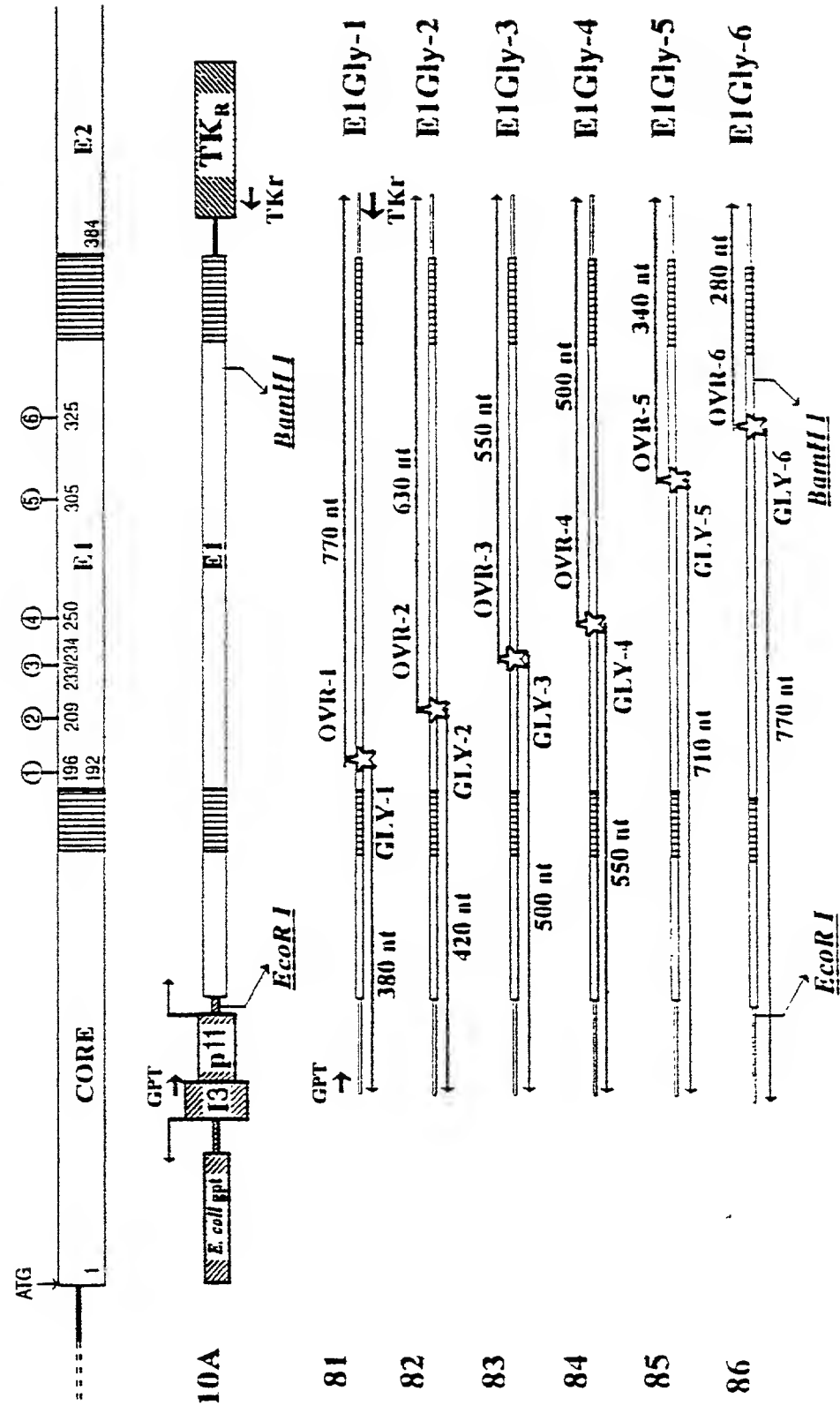


Fig. 43 *In Vitro* Mutagenesis of HCV E1 glycoprotein





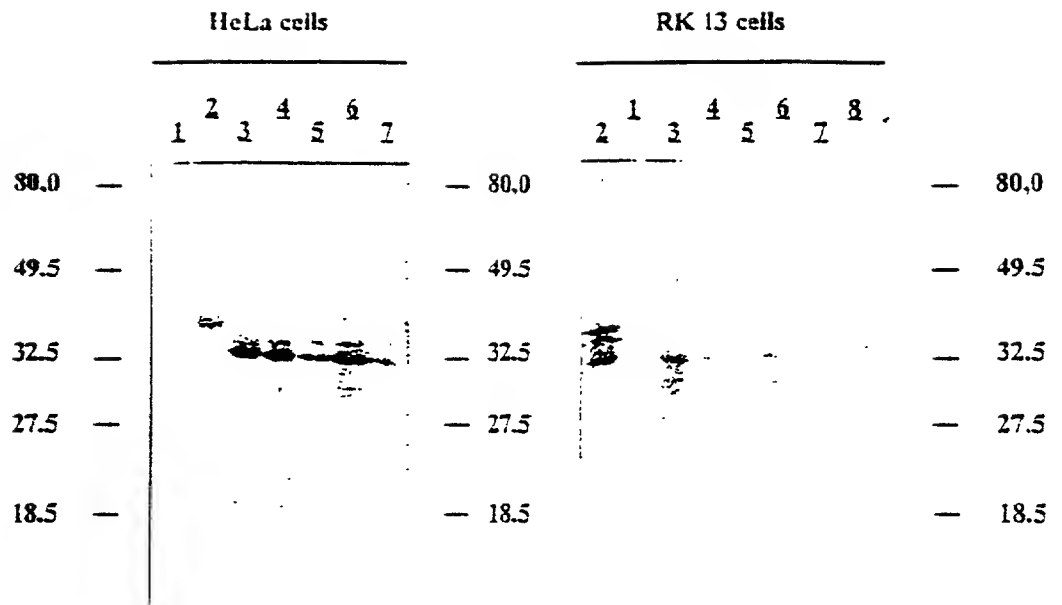


Fig. 44A



Fig. 44B



Fig. 45

KDa 119 67 43 29 18  
| | | | |



Fig. 46

Fig. 47

	age (years)	HCV infection (years)	genotype
Marcel	17	9	1a
Peggy	21	16.5	1b
Fenna	15	9	1a
Yoran	12	none	
Marti	12	none	

chronic carriers (strong T-cell adjuvant)

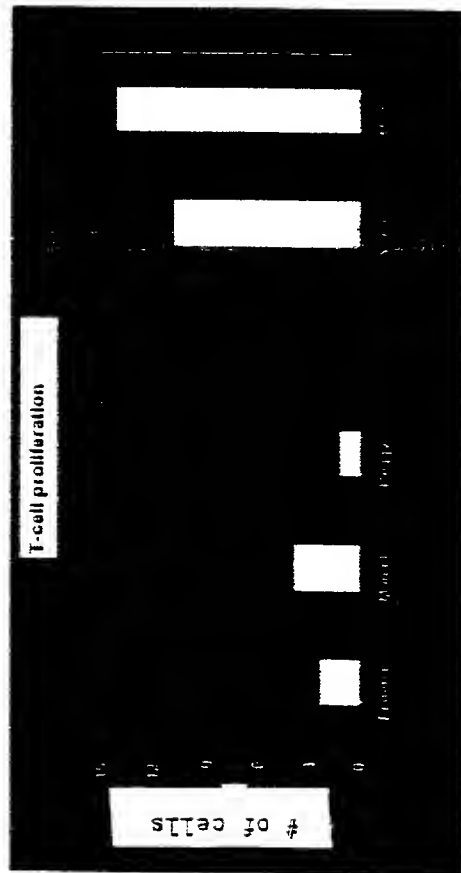
↓ ↓ ↓ ↓ ↓ ↓      ↓ ↓ ↓ ↓ ↓ ↓ 50 µg E1 dose  
 0 3 6 9 12 15      26 29 32 35 38 41 weeks

naive (alum)

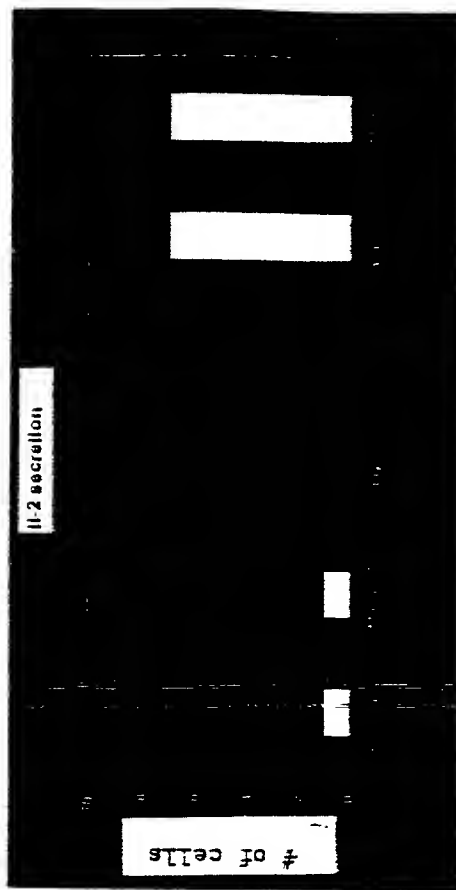
↓ ↓ ↓ ↓ ↓ ↓      50 µg E1 dose  
 0 3 6 9 12 15 weeks

**Fig.** 48

48a



48b



48c



48d

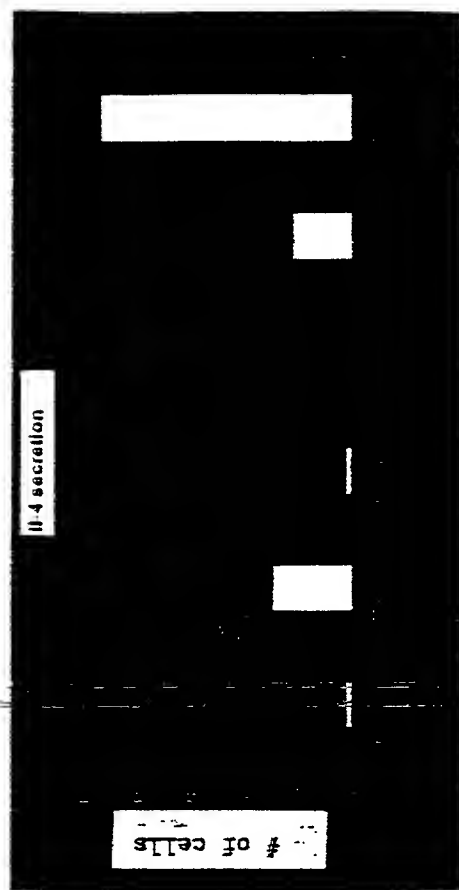
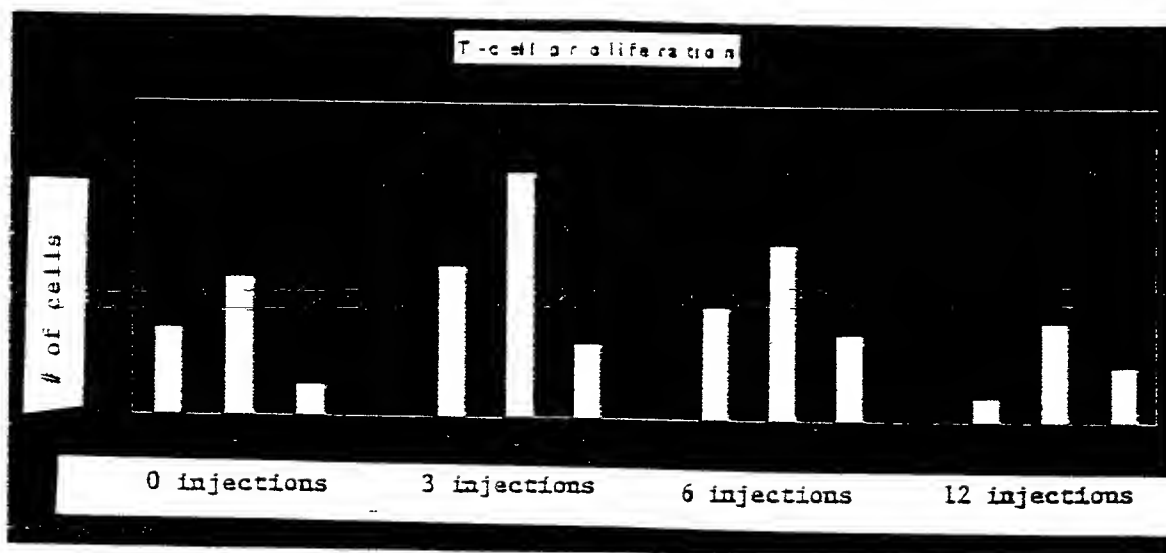


Fig. 49



1 Fem m a, 2 Mar cel, 3 P eggy

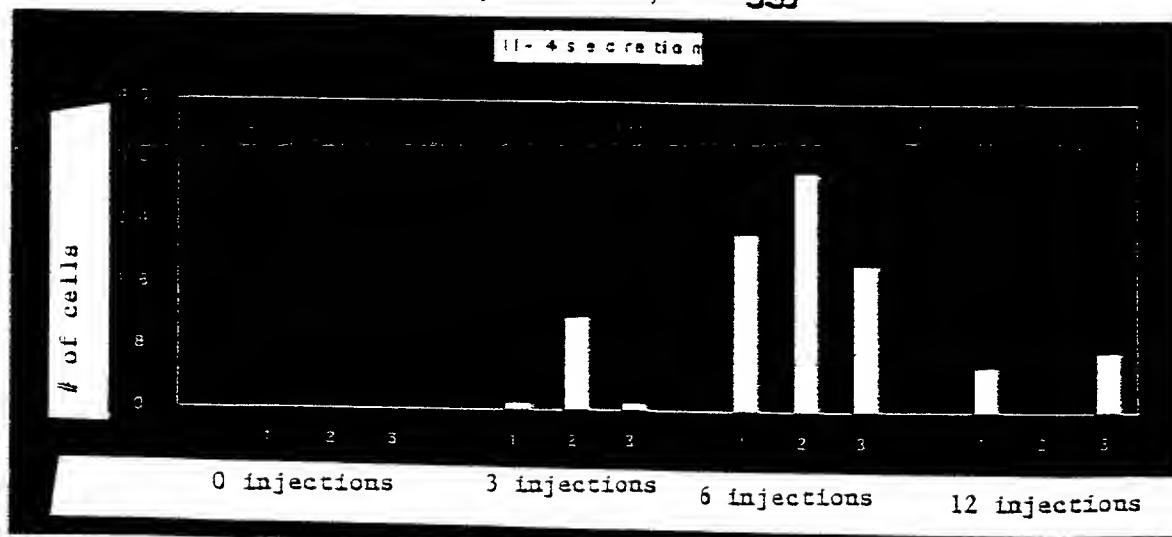
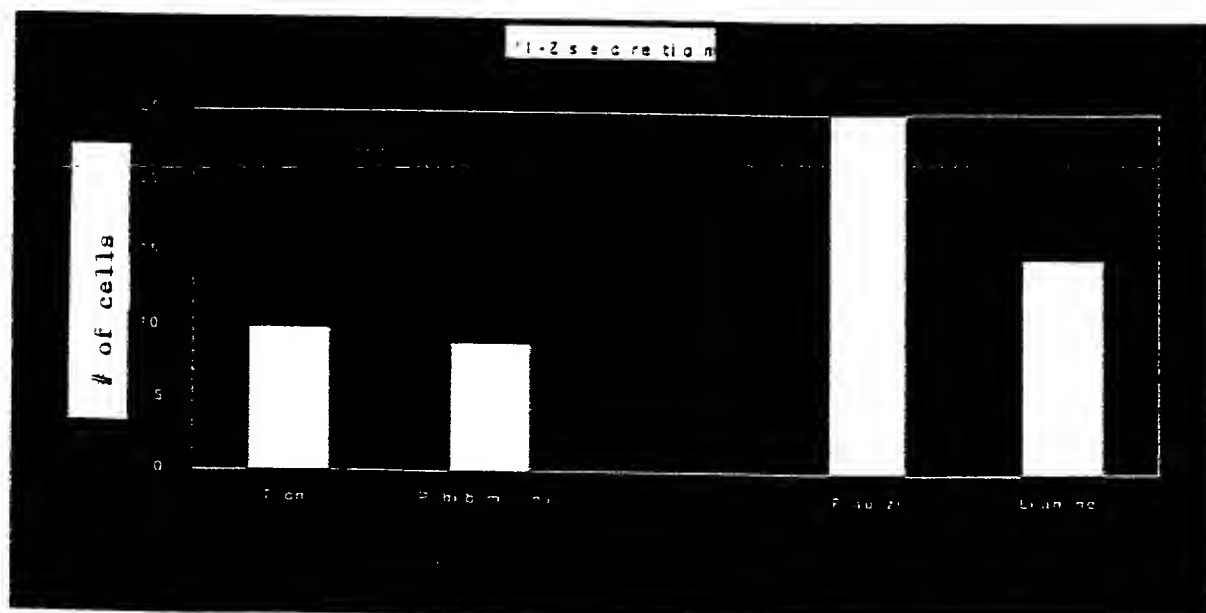
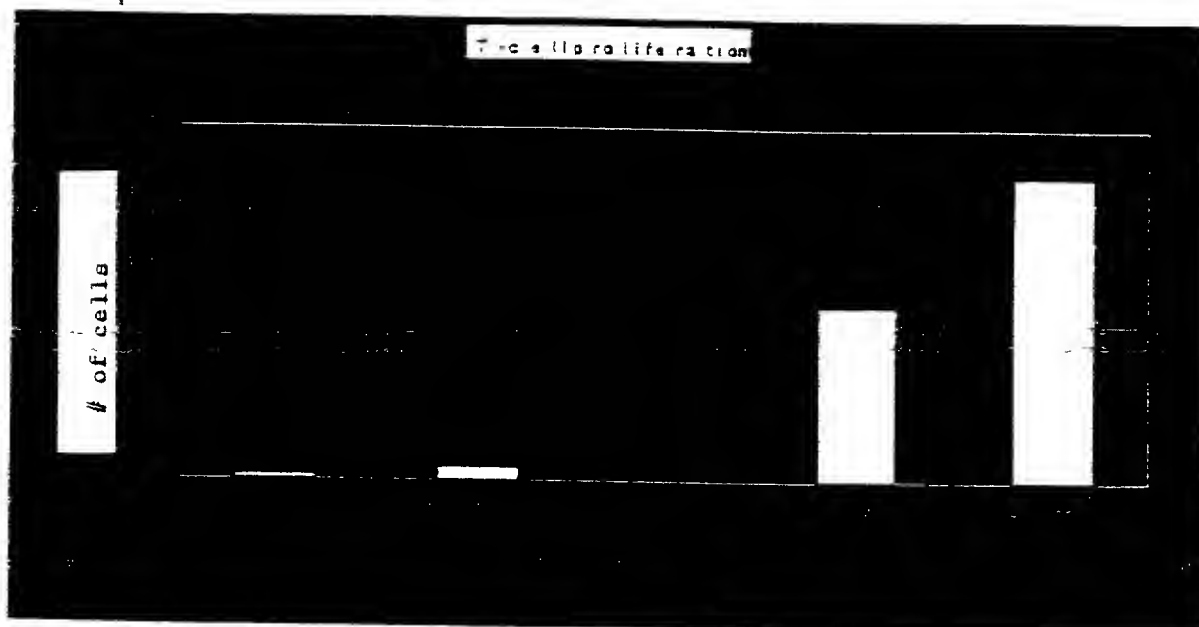


Fig. 50



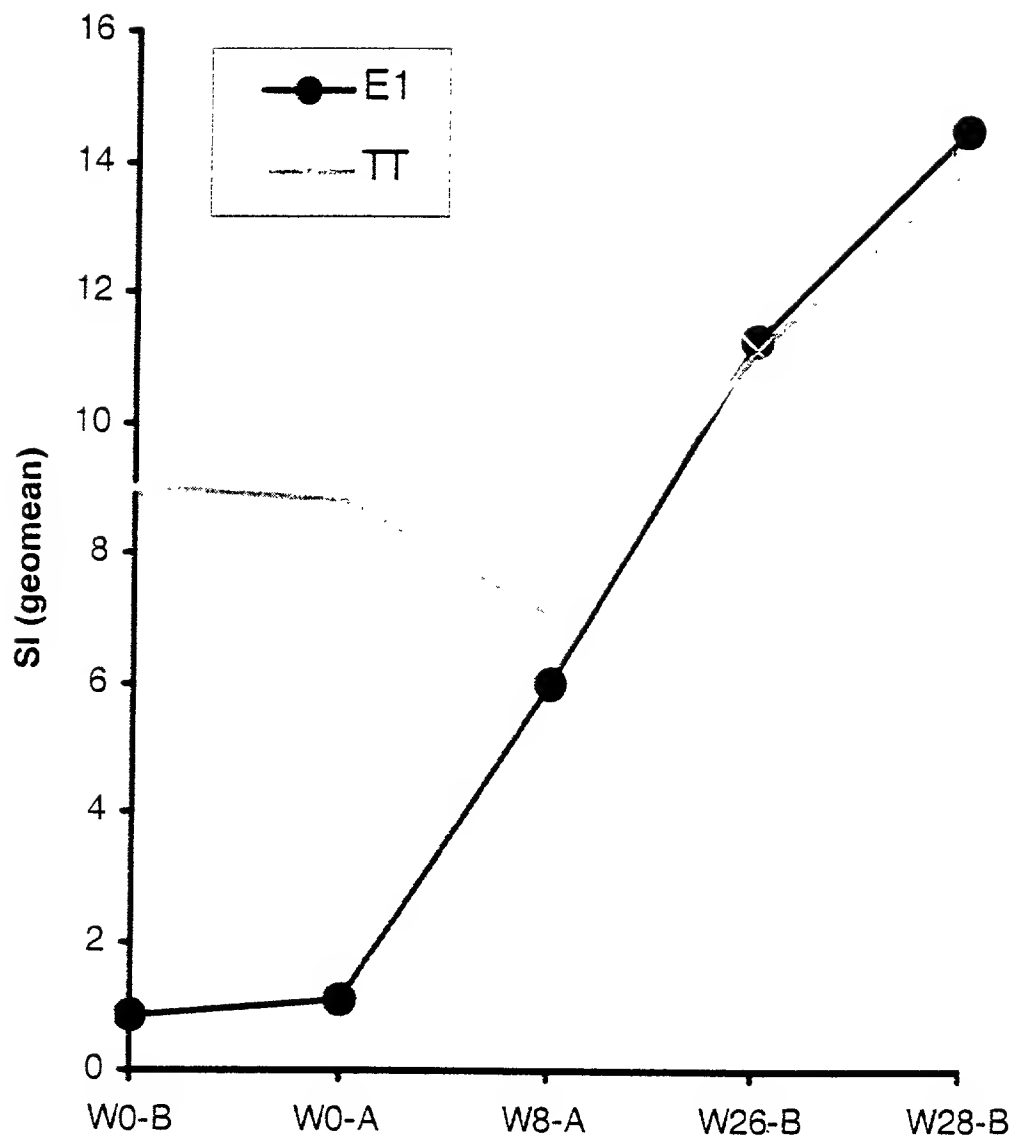


Fig 51

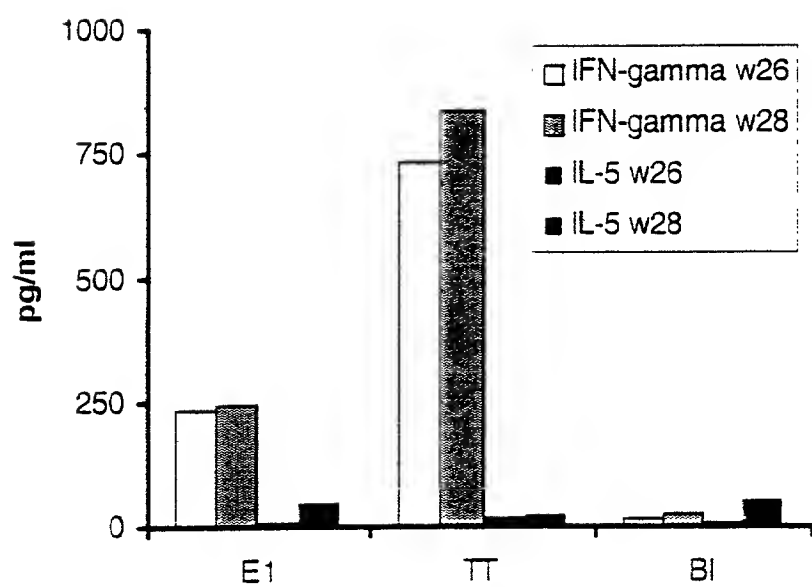


Fig 52



